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TREASURY DEPARTMENT

Public Health and Marine-Hospital Service of the United States

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**HYGIENIC LABORATORY—BULLETIN No. 79**

**JANUARY, 1912**

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**DIGEST OF COMMENTS**  
**ON THE**  
**PHARMACOPŒIA OF THE UNITED STATES**  
**OF AMERICA**  
*[EIGHTH DECENNIAL REVISION]*  
**AND ON THE**  
**NATIONAL FORMULARY**  
*[THIRD EDITION]*

**FOR THE CALENDAR YEAR ENDING DECEMBER 31**

**1909**

**BY**

**MURRAY GALT MOTTER**

**AND**

**MARTIN I. WILBERT**



**WASHINGTON**  
**GOVERNMENT PRINTING OFFICE**

**1912**

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*United States Public Health and Marine-Hospital Service.*

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## PREFACE.

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This bulletin, the fifth of the present series of "Digests," embodies a more or less complete review of the literature relating to articles included in the Pharmacopœia of the United States and the National Formulary which appeared during the calendar year ending December 31, 1909. All of the available literature has been carefully reviewed, and every reference that was thought to be helpful, or even suggestive, has been included. To save space, many of the references reporting laboratory examination of drugs and preparations have been compiled in the form of tables. This arrangement has been found to have the further advantage that it serves to emphasize the number of samples examined and the proportion of unacceptable or adulterated samples found.

The compilation of information regarding the compliance of the several pharmacopœias with the provision of the Brussels Conference has been brought down to date, and a table showing the comparative compliance evidenced by the several pharmacopœias published since 1905 has been added. This review of the compliance of the several pharmacopœias with the Protocol promulgated by the Brussels Conference of 1902, and later incorporated in the international treaty of 1906, serves to show that in practically all of the pharmacopœias published directly under the auspices of the national governments the provisions of the Brussels Conference have practically been adopted entire, and that with the single exception of the Pharmacopœia of the United States even the pharmacopœias published by more or less independent organizations have closely complied with these provisions. As the practical results of this the first international treaty for the unification of the formulas for potent medicaments have been so generally satisfactory it may be expected that further conferences may lead to even greater uniformity and that in the not far distant future we may have not only uniform requirements for the strength of potent medicaments, but also uniform methods of assay and at least some degree of uniformity in the Latin nomenclature.

The literature of 1909 relating to the Pharmacopœia of the United States is of exceptional interest because of the fact that, being the year immediately preceding the decennial meeting of the United States Pharmacopœial Convention, an unusual amount of preparatory

work was being done. The scope of the Pharmacopœia, being of more direct interest to medical practitioners, was actively discussed by physicians in connection with the several meetings of medical associations. Not the least comprehensive of these several discussions were those held in connection with the meeting of the American Medical Association. The Section on Pharmacology and Therapeutics of this association devoted several sessions to the discussion of the Pharmacopœia and the National Formulary, and at practically all of the sessions of this section matters of interest in connection with the official standards were discussed. Many of the other sections of the American Medical Association also discussed pharmacopœial matters, and in the Sections on Practice and on Ophthalmology comprehensive reports of special committees on the scope of the Pharmacopœia were read and discussed.

The publication of the Spanish edition of the Pharmacopœia of the United States attracted considerable attention, particularly in the United States itself, and the precedent thus established will no doubt be followed up by a more prompt translation into Spanish of the U. S. P. IX.

This bulletin has been compiled largely from material directly accessible to the compilers and evidences the advantages that would accrue to physicians and pharmacists interested in pharmacopœics if all of the necessary literature were more directly accessible.

So far as is possible the U. S. P. as well as the N. F. preparations are commented on in connection with the official name of the drug or chemical. National Formulary preparations of a complex nature and preparations the active constituent of which is not official are usually commented on under the name of the preparation.

The material included in these comments is generally arranged in accordance with the nature and style of the official monographs, the comments on nomenclature requirements being given precedence over those on origin or tests for purity, while references to the pharmacology and the therapeutic uses of the drug or compound are found at the conclusion of the paragraphs arranged under the several headings. Comments on nonofficial articles, when included, are given under the proposed English title.

While, in a general way at least, the references to the therapeutic uses of the several articles indicate the extent to which these substances are being commented on and used, the references from Homœopathic and Eclectic journals amply testify to the universality of the use of the more important medicaments and their widespread acceptance by all schools of medicine. The restricted use and the nature of the comments on some of the less well-known drugs of vegetable origin would appear to be an argument in favor of still further discouraging their use by withdrawing from them such official indorse-



ment as may be evidenced by the fact of their being included in the list of official medicaments.

The United States Pharmacopœial Convention, 1910, recommends "that there be included in the next Pharmacopœia such reagents, with standards for strength and purity, as are needed for the proper execution of tests that are valuable and important in the making of a correct diagnosis." In accordance with the spirit of this recommendation the compilers of this bulletin have added many, if not all, of the more important references to diagnostical tests, their nature and uses, that appear in the available literature, and trust that this information will prove useful not only to the officers of the United States Public Health and Marine-Hospital Service and to the members of the United States Pharmacopœia and National Formulary committees of revision, but also to laboratory workers and to medical men generally.

In view of certain criticisms which have been made upon Bulletin 75, attention is called to the fact that the change therein made in the orthography of the English title "syrup" to "sirup" was made in the Government Printing Office, not by the compilers of the bulletin. The same condition prevails in this bulletin.

To the list of journals received in exchange, as reported in the preface to Bulletin 75, there is to be added the Journal of the Pharmaceutical Society of Japan.

In conclusion, the editors beg to thank those who have assisted in any way in furthering the compilation of the literature embodied in this bulletin. They also desire to express their appreciation of the suggestions that have been received for perfecting these bulletins, and beg to assure contributors that in so far as is possible these suggestions will be utilized.

M. G. M.

M. I. W.

DIVISION OF PHARMACOLOGY, HYGIENIC LABORATORY,

*August 25, 1911.*



## LIST OF THE LITERATURE REVIEWED.

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**Am. Druggist**, N. Y.—American Druggist and Pharmaceutical Record, New York, 1909, v. 54, 55.  
**Am. J. M. Sc., Phila.**—American Journal of the Medical Sciences, Philadelphia, 1909, v. 137, 138.  
**Am. J. Pharm. Phila.**—American Journal of Pharmacy, Philadelphia, 1909, v. 81.  
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- J. Therap. & Diet.—*Journal of Therapeutics & Dietetics*, Boston, 1908-09, v. 3; 1909-10, v. 4.
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- Midl. Drug. Columbus.—*Midland Druggist and Pharmaceutical Review*, 1909, v. 43.
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  - Proc. Pennsylvania Pharm. Ass., 1909.
  - Proc. South Carolina Pharm. Ass., 1909.
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- Rep. Dairy, Food & Oil Com. Wyoming.—Report (5th Annual) of the State Dairy, Food and Oil Commissioner, Wyoming.
- Rep. District of Columbia Health Off.—Report of the Health Officer of the District of Columbia, 1909, Washington, 1910.
- Rep. Food & Drug Com. Missouri.—Report of the Food and Drug Commissioner of the State of Missouri (for 1909), 1910.
- Rep. Kentucky Agric. Exper. Sta.—Report of the Director of the Kentucky Agricultural Experiment Station (for 1908 and 1909), 1910.
- Rep. Local Govt. Bd. Suppl. Lond.—Report of the Local Government Board. Supplement.—Report of the Medical Officer, 38th Annual (1908-9), London, 1909.
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- Svensk. farm. Tidskr.—Svensk. farmaceutisk Tidskrift, Stockholm, 1909, v. 13.
- Therap. Gaz. Detroit.—Therapeutic Gazette, Detroit, 1909, v. 33.
- Therap. Monatsh. Berl.—Therapeutische Monatshefte, Berlin, 1909, v. 23.
- Therap. Neuh.—Therapeutischen Neuheiten, Leipzig, 1909, v. 4.
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- Western Druggist, Chicago, 1909, v. 31.
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- Ztschr. f. anorg. Chem. Hamburg.—Zeitschrift für anorganische Chemie, Hamburg, 1909, v. 61-65.
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## 2. TITLE ABBREVIATIONS—PHARMACOPŒIAS AND NONOFFICIAL STANDARDS.

- Ph. Arg. I.—Farmacopea Nacional Argentina, primera edición, 1898.
- Ph. Austr. VIII.—Pharmacopœa Austriaca, editio octava, 1906.
- Ph. Belg. III.—Pharmacopœa Belgica, editio tertia, 1906.
- Ph. Brit. IV.—British Pharmacopœia, 1898.
- Ph. Chil. I.—Farmacopea Chilena, 1886.
- Ph. Dan. VII.—Pharmacopœa Danica, 1907.
- Ph. Fr. V.—Codex Medicamentarius Gallicus, Pharmacopée Française, 1908.
- Ph. Germ. V.—Deutsches Arzneibuch, 5 Ausgabe, 1910.
- Ph. Helv. IV.—Pharmacopœa Helvetica, editio quarta, 1907.
- Ph. Hisp. VII.—Farmacopea oficial española, séptima edición, 1905.
- Ph. Hung. III.—Pharmacopœa Hungarica, editio tertia, 1909.
- Ph. Ital. III.—Farmacopea ufficiale del regno d'Italia, terza edizione, 1909.
- Ph. Japon. III.—The Pharmacopœia of Japan, 1906 (English Translation, 1907).
- Ph. Mex. IV.—Nueva Farmacopea Mexicana, cuarta edición, 1904.
- Ph. Ndl. IV.—Pharmacopœa Nederlandica, editio quarta, 1905.
- Ph. Russ. VI.—Pharmacopœa Rossica, sixth edition, 1910.
- Ph. Serb. II.—Pharmacopœa Serbica, editio secunda, 1908.
- Ph. Svec. IX.—Svenska Farmakopén (Pharmacopœa Svecica, ed. IX), 1908.
- U. S. P. VIII.—Pharmacopœia of the United States, 8th Dec. Rev., 1905.
- Ph. Ven. I.—Farmacopea Venezolana, 1898.
- N. F. III.—The National Formulary of Unofficial Preparations, Baltimore, 1906.
- N. N. R.—New and Nonofficial Remedies, Chicago, 1909.
- B. P. C.—British Pharmaceutical Codex, London, 1907.



# Digest of Comments on the Pharmacopoeia of the United States of America, VIII, and on the National Formulary, III.

## I. GENERAL COMMENTS.

### 1. LEGAL STATUS AND DEVELOPMENT.

#### 1. PURE FOOD AND DRUGS ACT.

McCabe, Geo. P., in an address delivered before the Utah Pharmaceutical Association, discusses the national food and drugs act of June 30, 1906, and the several provisions made for its enforcement.—*Am. J. Pharm.*, Phila., 1909, v. 81, pp. 361–374. Also *Western Druggist*, Chicago, 1909, v. 31, pp. 465–467.

Carter, Fred L., in the president's address to the members of the N. W. D. A., discusses the desirability of having the several State pure-drug laws conform with the Federal law, and points out that in at least a few of the States the laws differ from the national law in some important respects, and that this difference is detrimental to the interests of manufacturers and dealers engaged in interstate commerce.—*Proc. N. W. D. A.*, 1909, p. 40.

Wiley, H. W., calls attention to the compilation of the various Federal, State, Territorial, and other laws governing the sale and labeling of drug products in the United States and its Territories that has been made in the bureau under his supervision.—*Ann. Rep. U. S. Dept. Agr.* for 1909, 1910, p. 436.

An editorial (*Am. Druggist*, N. Y., 1909, v. 55, p. 171) calls attention to a compilation of food and drug laws, published under the auspices of the National Wholesale Druggists' Association and the Proprietary Association of America.

McCabe, Geo. P., reports that 494 cases of violation of the food and drugs act of June 30, 1906, were reported by the department to the Attorney General and United States attorneys during the fiscal year. A detailed report, giving the name of the defendant, the judicial district, the nature of the offense charged, and the disposition or present status of the case.—*Ann. Rep. U. S. Dept. Agr.* for 1909, 1910, pp. 741–759.

Kline, C. M., asserts that, while the food and drugs law has been in effect for nearly three years, the mechanism for carrying out the provisions of the law has not yet been sufficiently perfected to give anything like effective service.—Proc. N. W. D. A., 1909, p. 120.

Caspari, Charles E., discusses the enforcement of the food and drugs act, and points out that much time, money, and energy are being spent by the Government in enforcing this law, and that the results with regard to actual improvement of the health of the people are certainly questionable.—Meyer Bros. Drug., St. Louis, 1909, v. 30, pp. 112-117.

Carter, Fred. L., points out that while the people are being more and more protected, as food and drugs laws are being more ably executed by authorities having them in charge, there is, however, a fatal defect in the operation of these several laws, as there is nothing in them that applies to the dispensing of drugs by the medical profession.—Proc. N. W. D. A., 1909, p. 41.

Horning, George H., thinks that while the national pure food and drugs law has caused a great deal of inconvenience and expense to manufacturers and jobbers, it will produce much good for the general public.—Proc. New Jersey Pharm. Ass. 1909, p. 17.

Wiley, H. W., states that the existing drug laws throughout the United States, while admirable in conception and useful in practice, still lack many features which, if added, would greatly increase their efficiency.—Am. J. Pharm., Phila., 1909, v. 81, p. 80.

Judd, A. F., in calling attention to several products sold under a guarantee of purity, which on examination were found to be deficient in strength, points out that this is an object lesson to those druggists who blindly accept their purchases, relying upon the label and pinning their faith to the jobber.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 193.

Beringer, George M., discusses the use and abuse of the guarantee clause of the food and drugs act.—Am. J. Pharm., Phila., 1909, v. 81, p. 445. Also Proc. Am. Pharm. Ass., 1909, v. 57, pp. 666-669.

The board of control of the N. W. D. A. points out that members of that association should not place too much dependence on national and State laws, but should carefully examine their purchases of crude drugs. An analytical laboratory is not absolutely essential for the accomplishment of this purpose.—Proc. N. W. D. A., 1909, p. 282.

Dunlap, Renick W., dairy and food commissioner of Ohio, calls the attention of druggists and others to a number of drugs that are below standard, and points out some of the reasons for their adulteration or noncompliance with the standard.—Midl. Drug., 1909, v. 43, pp. 355-356.

Wilbert, M. I., quotes H. E. Barnard, the State food and drug commissioner of Indiana, who, in a circular of information to the

drug trade, points out that the guarantee is a protection against prosecution only in the case of goods in the original package, but as soon as the box is opened, stopper drawn, or seal detached, the guarantee ceases, and all responsibility for the character of the goods passes from the manufacturer or jobber to the retailer.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 671.

Wood, H. C., jr., asserts that compliance with the requirements of the pure food and drugs act is by no means general, his experience having taught him that an alarmingly large proportion of the pharmaceuticals in use to-day do not comply with U. S. P. standards.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 23.

An editorial (*Ibid.*, p. 278) commenting on the scope of the National Formulary, points out that the N. F., despite the many complex formulas contained in it, is nevertheless an efficient legal standard.

Wiley, H. W., thinks that nothing in the National Formulary should be in conflict with either the letter or the spirit of the food and drugs act. He believes it advisable to call a spade a spade, and to insist that the national standards contain a "pure-bred" nomenclature based on a principle, and that that principle be honesty.—*Ibid.*, p. 121.

Remington, Joseph P., expresses the belief that the time has arrived to compel the manufacturer and retail druggist to label his products according to the Pharmacopœia, or to use a different name that will not be misleading. He thinks that all the education that can be had in favor of a more stringent food and drugs act will be welcomed.—Proc. Pennsylvania Pharm. Ass., 1909, p. 143.

An editorial (Bull. Pharm., 1909, v. 23, p. 227) commenting on the pharmacopœial preparations that have been found to be below standard, expresses the belief that drug standards in the future are going to be more severe than they have been in the past and that food and drug commissioners will be increasingly active in years to come; so that it behooves the pharmacists to read the handwriting on the wall and prepare themselves for the inevitable.

Kebler, L. F., discusses the drug importation act of 1848 and the food and drugs act of June 30, 1906, and points out that for all practical purposes the latter has replaced the former.—Am. J. Pharm., Phila., 1909, v. 81, pp. 17-24.

See also articles by Ashmead, Benjamin P.; Gesell, W. J.; and Beringer, George M.—*Ibid.*, p. 24 ff.

Toms, Joseph E., calls attention to and enumerates the food inspection decisions that are of interest to persons engaged in the drug trade.—Proc. N. W. D. A., 1909, p. 54.

See also Pacific Pharmacist, National Druggist, and other journals.



## 2. THE PHARMACOPŒIA AS A LEGAL STANDARD.

Remington, Joseph P., points out that the U. S. Pharmacopœia is a book of legal standards, especially since it has been adopted by the food and drugs act.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 208.

Murray, B. L., thinks that the Pharmacopœia of the United States is without doubt the most important law book that is written by laymen. While it is revised and put forth by a mere handful of men, it is in effect the law for all our millions of population. It may safely be said that directly or indirectly it exerts its influence on each and every inhabitant of the United States and its possessions.—J. Ind. Eng. Chem., 1909, v. 1, p. 775.

Kremers, Edward, points out that the Pharmacopœia of the United States, compiled by a self-constituted authority with no standing before the law, has gradually been accepted as a standard by many of the States and since its last revision has been made the legal standard of the United States by special act of Congress. He adds that the question may well arise as to whether the administrative officers of the Government should not provide their own standards rather than use those already existing.—Midl. Drug., 1909, v. 43, p. 254.

Leffmann, Henry, asserts that a work that determines the conditions on which criminal proceedings are brought should originate and be controlled by official authority, not by private management. The framers of the current revision recognized that the book had become a danger in this respect and placed in it a formal statement that it is a standard for drugs and not for foods. Under the sanction and control of the General Government the book will become in reality the "United States Pharmacopœia."—Boston M. & S. J., 1909, v. 160, p. 624.

An editorial (Am. Druggist, N. Y., 1909, v. 55, p. 363) in discussing the relation of the Government and the Pharmacopœia, records a number of objections to the Coudrey bill.

Beal, J. H., in discussing the possibilities of a Government-owned Pharmacopœia, points out that the committee of revision of the Pharmacopœia of the United States do not and will not make the law. They did make the Pharmacopœia, and the Congress and President in their law-making capacity found it adapted to the purpose and included it in the food and drugs act, just as Congresses and Presidents have hundreds of times before adopted the results of investigations of men skilled in special lines, and as they will probably adopt them hundreds of times again.—Midl. Drug., 1909, v. 43, p. 671.

Remington, Joseph P., asserts that ultimately the destiny of the work will require greater control by the United States Government, because it has now become, through the food and drugs act, the

standard; but a glance at the pharmacopœias of other countries will show that pharmacopœias are revised by experts in pharmacopœial work and that commissions are formed, controlled by the government, for publishing such works. If the United States Government carries out its intention of requiring strict compliance with the standards of the Pharmacopœia, the medical profession will be supplied with an armamentarium second to none.—*Boston M. & S. J.*, 1909, v. 160, p. 624.

Wetterstroem, Theo. D., points out that the limiting paragraph in the introductory notice of the Pharmacopœia clearly restricts the applicability of the Pharmacopœia "to substances which are used solely for medicinal purposes, and when professedly bought, sold, and dispensed as such." In other words, if the purchaser wants the U. S. P. drug product, he must ask for it under the qualifying name.—*Midl. Drug.*, 1909, v. 43, p. 186.

Wilbert, M. I., points out that the Pharmacopœia of the United States now holds an entirely different position with reference to the several interests involved from what it did when the book was first published. He thinks that this change in its relative standing suggests several imperfections in the pharmacopœial convention that must be corrected if the hitherto successfully maintained democratic method of procedure is to be continued.—*Ibid.*, p. 683.

Beringer, George M., in an article entitled "The pharmacists and the United States Pharmacopœia," discusses the part taken by pharmacists in the several revisions of that book and points out the need for united effort to perfect it as a legal standard.—*Am. J. Pharm.*, Phila., 1909, v. 81, pp. 389-393.

The board of control of the N. W. D. A. offers in the form of a resolution the recommendation of the committee on standards and tests of the U. S. P. and N. F., that the legal character of the U. S. P. demands most careful scrutiny of the language used in describing both standards and tests.—*Proc. N. W. D. A.*, 1909, p. 295. See also p. 165.

Wilbert, M. I., thinks that as a legal standard the Pharmacopœia of the United States should not contain uncertain, misleading, or false statements or requirements, and that the general principles should direct that the requirements be stated in simple language and to the point.—*Midl. Drug.*, 1909, v. 43, p. 684.

Rusby, H. H., asserts that the looseness of pharmacopœial definitions has been the direct cause of failure of justice. He thinks that such statements as "and other species," "and some species," and "closely allied species," simply open the door to unprofitable disputes.—*Ibid.*, p. 687.

Oldberg, Oscar, points out that there is considerable confusion concerning the legal force of the Pharmacopœia of the United States

and the National Formulary, and it should always be remembered that legislative enactments are not final until tested in the courts.—*Pacific Pharmacist*, 1909–10, v. 3, p. 331.

An editorial (*Pharm. Era*, 1909, v. 41, p. 245) expresses the belief that it is not likely that the statutory recognition of the National Formulary will ever be repealed, and for that reason, in the revision the volume should in its entirety be brought into harmony with the general trend of pure drug laws, especially in cases where the titles given to preparations would obviously be assailable under the sections prohibiting misbranding.

Hynson, Henry P., points out that the recognition of the National Formulary by the Government has unexpectedly and greatly enhanced its importance and has led the American Pharmaceutical Association to order a complete and rigid revision. The next edition will, therefore, be as nearly ethical and scientific as the exigencies of actual, present-day medical practices will permit.—*Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, p. 230.

Flemer, Lewis, states that since the National Formulary has become official and, together with the Pharmacopœia of the United States, sets the legal standard, it would be advisable to have the National Formulary committee and the revision committee of the U. S. P. work together, or through a joint committee.—*Apothecary*, 1909, v. 21, June, p. 29.

An editorial (*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 278) points out that the U. S. Pharmacopœial Convention and the American Pharmaceutical Association are both created for a public purpose and endowed with certain public functions, and that the revision and publication of the U. S. P. and N. F. have much in common.

A number of articles from the *Druggists Circular* regarding the future of the Pharmacopœia are reprinted. A list of officers of the convention, the trustees, the committee of revision, and the committee on credentials of the pharmacopœial convention, is also reprinted.—*Oil, Paint and Drug Reporter*, New York, 1909, v. 76, Dec. 27, p. 10.

Rusby, H. H., discusses the Federal law and the Pharmacopœia, and points out the need for elaborating the Pharmacopœia of the United States so that it can be used as a standard for all drugs that are widely used.—*Pharm. Era*, 1909, v. 42, pp. 631–635.

Hunt, Reid, points out that, in the present evolution of the Pharmacopœia as a commercial standard, there is danger that the very purpose for which the work was founded and for which it exists will be obscured. He thinks that the medical profession will sooner or later insist that only those articles extensively used in the treatment or prevention of disease, and the solvents, reagents, or other chemicals absolutely necessary for their preparation or testing, be admitted.—*Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, p. 11.

An editorial note (*National Druggist*, 1909, v. 39, p. 7) points out that the principle instituted by pharmacists in charge of the French Codex, which virtually asserts that the Codex must be regarded as being made up of several editions, and that the drug, chemical, or preparation becomes legalized and continues to be so legalized unless changed in a subsequent edition, is altogether different from the principle that obtains in our own country under the Federal food and drugs act, or under the State laws modeled after it. These laws generally declare that the standard shall be set by the latest edition of the Pharmacopœia.

v. Bókay, Árpád, in discussing the scope of the Ph. Hung. III, points out that, for all medicaments which are not included in the new edition, or which were official in the second edition, or which are official in the pharmacopœias of other countries, the requirements contained in these several pharmacopœias apply.—*Pharm. Post*, Wien, 1909, v. 42, p. 705.

Cribb, C. H., in discussing Squire's Companion to the British Pharmacopœia, says of course, no unofficial publication can rid the Public Analyst of the incubus of the British Pharmacopœia, a volume made legally binding on certain persons by an order in council passed years before the present food and drugs act existed, and which now has to be employed in a manner never intended by its original authors, and for a purpose which could never have entered their heads.—*Analyst*, London, 1909, v. 34, p. 254.

### 3. SUPPLEMENT TO THE PHARMACOPŒIA.

Plant, Albert, asserts that the Pharmacopœia is a splendid publication, but it is changed only every 10 years, and it is not kept in touch, therefore, with chemistry and pharmacy. He suggests that annual supplements would have the tendency of keeping the Pharmacopœia up to date.—*Am. Druggist*, N. Y., 1909, v. 54, p. 97.

Solis-Cohen, Solomon, thinks that the issuance of annual or biennial supplements, incorporating any useful results of suggestions and criticisms, will minimize the drawbacks of delay and facilitate the complete decennial revision.—*Boston M. & S. J.*, 1909, v. 161, p. 53.

Remington, Joseph P., calls renewed attention to the nature of the Additions and Corrections to the U. S. P. VII, which, as he points out, was really a supplement which the convention authorized the committee to prepare and send out.—*Am. J. Pharm.*, Phila., 1909, v. 81, p. 573.

Cole, W. J., asserts that we should unite in our demands upon the A. M. A. that it shall authorize and instruct its sections on pharmacy and materia medica to appoint a committee on revision

which shall meet the fourth and seventh year of each decade for the purpose of preparing and issuing a supplementary edition of the Pharmacopœia and making the same available to all at a nominal price. The pronouncements of the supplementary editions are to be official, and are finally to be embodied in the regular edition of the Pharmacopœia.—Proc. Florida Pharm. Ass., 1909, p. 27.

Lackey, Richard H., expresses the belief that except in the case of preparations whose formulas are found to be unsatisfactory, there is no advantage in a more frequent revision of the Pharmacopœia. In the event of errors, or formulas found faulty, the issuing of an addendum citing corrections and changes, as was done in May, 1907, will supply sufficient information and obviate some of the difficulties attendant upon too frequent revision.—Proc. Pennsylvania Pharm. Ass., 1909, p. 246.

Sollmann, Torald, recommends that the revision committee publish its conclusions as soon as possible after they are made, and that an interval of at least four months be allowed for public discussion before the conclusions are officially adopted; that once a year, or oftener if necessary, a supplement be issued, printed in such a manner as to be readily detached and inserted in the current Pharmacopœia; that each supplement become official four months after the date of its publication; that a new issue of the Pharmacopœia, embodying these supplements, be printed whenever and as often as the supplementary matter is of sufficient volume and importance to justify the board of trustees in printing a revised edition.—J. Am. M. Ass., 1909, v. 53, p. 1545.

#### 4. THE PHYSICIAN AND THE PHARMACOPŒIA.

Sollmann, Torald, thinks it absolutely indispensable, if the Pharmacopœia is to be a medical standard, and not merely a compilation of pharmaceutical receipts and tests, that physicians should have at least an equal share in directing the general policies; and they alone should decide what substances are to be admitted, otherwise the physician should disclaim all responsibility and abandon a false position.—J. Am. M., Ass., 1909, v. 53, p. 1543.

Solis-Cohen, Solomon, thinks that, while important to teachers and workers in pharmacology and therapeutics, the Pharmacopœia is not, and can not be, a book for the practicing physician. It is a guide for the pharmacist only, but such a guide as the physician has directed the pharmacist to prepare. The physician is to inform the pharmacist as to what it is necessary the Pharmacopœia should contain.—Boston M. & S. J., 1909, v. 161, p. 53.

Bruder, Otto E. F., points out that it is the physician who uses official drugs and preparations, and no other than a physician can judge of their merits or disadvantages in a therapeutic sense. The

function of the pharmacist is to supply a quality article of that which the physician desires to use.—N. A. R. D. Notes, 1909, v. 9, p. 282.

Hunt, Reid, points out that the medical profession is primarily interested in the question of the scope of the Pharmacopœia, and that, considering the origin and real purposes of the work, physicians should have a very important, even a leading, part in determining the number and nature of the articles that are to be described.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 11.

Remington, Joseph P., asserts that the various articles in the Pharmacopœia are there because they were voted on by physicians. What goes into the Pharmacopœia, or what is taken out of it, is altogether in the hands of the physicians of the committee, the general committee ratifying their work.—*Ibid.*, p. 235.

Wilbert, M. I., discussing the relation of "New and Nonofficial Remedies" to the Pharmacopœia of the United States, suggests that the quasi-recognition that has been accorded to a large number of active medicaments by the former book is an indication that the Pharmacopœia does not meet all of the present-day requirements of the medical practitioner, and certainly does not reflect the actual needs in the practice of medicine to-day.—Merck's Rep., 1909, v. 18, p. 206.

An editorial (J. Am. Ass., 1909, v. 53, p. 1491) calls attention to the reports on the Pharmacopœia of three committees of sections of the A. M. A. (*Ibid.*, pp. 791-796.) The primary object of these section committees is to collect material which will indicate to the committee of revision the desire of the medical profession concerning the scope of the Pharmacopœia.

The report of the committee on the United States Pharmacopœia of the American Medical Association outlines the efforts that are being made to define the scope of the Pharmacopœia from the medical point of view.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, pp. 189-191. Also Bull. Am. Pharm. Ass., 1909, v. 4, pp. 220-222.

An editorial (Therap. Gaz., 1909, v. 33, p. 558) comments on the practical method of revising the Pharmacopœia, followed by the Section on Ophthalmology of the American Medical Association.

Bruder, Otto E. F., commends the report of the committee of the Section on Practice, and thinks that it indicates that not only are the physicians interested in reform and progress, but the nature of their suggestions shows a high degree of what may be characterized as "scientific common sense."—N. A. R. D. Notes, 1909, v. 9, p. 281.

An editorial (Pharm. J., Lond., 1909, v. 29 (83), pp. 359-360), commenting on the report of the committee on the revision of the Pharmacopœia to the Section on Practice of Medicine of the American Medical Association, discusses at length the various suggestions made by this committee, also discusses the list of articles to be

dropped from, and the list of articles to be added to, the Pharmacopœia, and concludes that, while it may seem that the number of drugs to be included is in striking disproportion to the number stricken out, the overgrown condition of the Pharmacopœia supports the advisability of this.

An editorial (*J. Am. M. Ass.*, 1909, v. 53, p. 1825) asserts that the references to the present-day use of the several drugs found in Bulletin 49, Hyg. Lab., appear to bear out the oft-repeated assertion that, in the application of the really useful medicaments, there is no essential difference between the graduates of the several schools.

Leffmann, Henry, discusses the capture of the Pharmacopœia, with suggestions for its recapture. He believes it is time to make the U. S. P. a national work in the full sense of that expression.—*Boston M. & S. J.*, 1909, v. 160, p. 624. Also *Am. J. Pharm.*, Phila., 1909, v. 81, pp. 384–388; *Drug. Circ.*, N. Y., 1909, v. 53, pp. 257–260, and *Tr. Am. M. Ass.*, Sec. Pharm. & Therap., 1909, pp. 219–222.

An editorial (Meyer Bros., *Drug.*, St. Louis, 1909, v. 30, p. 356) points out that the revision of the U. S. P. is not all left to the committee of revision, and asserts that medical associations and medical colleges will do well carefully to study the historical introduction as well as the preface to the present Pharmacopœia.

Dixon, W. E., asserts that to make the student of medicine commit to memory the heterogeneous mixtures in the Pharmacopœia, many of which are unreasonable and have arisen by ignorance or by misconception, is a piece of stupidity unworthy of the age.—*Brit. M. J.*, 1909, v. 2, p. 539.

The editor of the "Therapeutics" column (*J. Am. M. Ass.*, 1909, v. 53, p. 2006) asserts that it is manifestly needless, useless, and an unnecessary hardship to require medical students to acquire a knowledge of a drug that is rarely, if ever, and perhaps should never be, used in the practice of medicine.

Conner, Lewis A., recommends (1) the publication of a greatly abridged physician's edition; (2) the inclusion of the more trustworthy and useful of the modern, synthetic drugs, whether they be patented or not; and (3) the issuance at frequent (perhaps yearly) intervals of bulletins recording the changes made, the new drugs introduced, the undesirable drugs dropped.—*J. Am. M. Ass.*, 1909, v. 53, p. 793.

Benedict, A. L., thinks that the Pharmacopœia should be simplified, standardized, and rendered more elastic, so as to exclude a great mass of purely arbitrary facts, and so that we may save a great waste of time in memorizing details which apply to single drugs. Then clinically, didactically, and with special reference to bedside prescribing and prescription writing, the really definite facts of drug therapeutics should be drilled into students and receive more atten-

tion from textbooks and medical journals and societies.—Apothecary, 1909, v. 21, November, p. 25.

Hilton, S. L., thinks that physicians should indicate the articles that are to be included in the U. S. P., and to a lesser degree, perhaps, should also indicate the formulas or class of formulas they desire to have incorporated in the National Formulary.—Pharm. Era, 1909, v. 42, p. 638.

Hynson, Henry P., in discussing the National Formulary, asserts that it was never intended that the book should be considered an ethical, therapeutic, or pharmacologic standard for the medical profession, and it has never been thought by sensible pharmacists that it was within their province to set such standards for medical men.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 229.

Jacobi, Abraham, asserts that The Formulary must not immortalize or idealize the mistakes of the prescribing doctors, and if the Formulary will be one-third as long as it is now he thinks it will be good for all parties, for the druggist as well as the physician.—*Ibid.*, 1909, p. 234.

Hunt, Reid, thinks that the U. S. P. should continue to be what its founders intended it to be, viz, a medium of communication between the prescribing physician and the dispensing pharmacist. It should not be made a standard for drugs which the retail druggist is not called upon to dispense, except in so far as the quality of the preparations which he does dispense is directly dependent upon the quality of the crude drugs.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 794.

Wilbert, M. L., believes that physicians should practically dictate the scope of the Pharmacopœia, but that this dictation should be based on a comprehensive polling of the medical profession as a whole.—Am. J. Pharm., Phila., 1909, v. 81, p. 566.

Remington, Joseph P., asserts that he has frequently expressed the opinion that the medical profession should be the sole arbiters in the matter of selecting the medicines which should be added to the Pharmacopœia as well as those which should be deleted.—*Ibid.*, p. 575.

An editorial (J. Am. M. Ass., 1909, v. 53, p. 1918) discusses the Pharmacopœia, its history and its importance to the medical profession, and expresses the fear that there is grave danger lest this work, which was primarily a reflection of the needs of the medical practitioner, should become a purely pharmaceutical, rather than a medical, compilation.

An editorial (Western Druggist, Chicago, 1909, v. 31, p. 727) asserts that it is true that the Pharmacopœia is essentially a record of the medicines employed by physicians, but it by no means follows that physicians have the knowledge or the experience required to produce this record in satisfactory form.



An editorial (Am. Druggist, N. Y., 1909, v. 55, pp. 333-334) discusses the relation of the physician and the Pharmacopœia, and points out that, as a matter of fact, the majority of drugs sold never at any stage of their history pass under the eye of the physician.

#### 5. U. S. P. CONVENTION REPRESENTATION.

The first call for the United States Pharmacopœial Convention of 1910 is reprinted.—Am. J. Pharm., Phila., 1909, v. 81, pp. 246-247.

The constitution and by-laws of the United States Pharmacopœial Convention, 1900, are reprinted.—*Ibid.*, pp. 525-533.

Leffmann, Henry, reviews the representation in the several pharmacopœial conventions from 1820 to 1900 and discusses the influences evidenced from time to time in the revision of the Pharmacopœia.—*Ibid.*, p. 385.

Wilbert, M. I., believes that to make the Pharmacopœia really representative of the several interests, representation should be given to wholesale druggists, dentists, and veterinarians.—*Ibid.*, p. 566, See also Midl. Drug., 1909, v. 43, p. 683.

Beal, J. H., in an editorial, calls the attention of possible delegates to the U. S. P. Convention to the fact that the convention is now an incorporated body and that the old hit-and-miss method of admitting delegates will no longer prevail.—Midl. Drug., 1909, v. 43, p. 176.

An editorial (N. A. R. D. Notes, 1909, v. 9, p. 222) asserts that the continued success of the Pharmacopœial Convention depends upon its being thoroughly representative of medicine and pharmacy, and this means that all medical and pharmaceutical bodies of character and standard should be represented therein.

Whelpley, Henry M., reports that the board of trustees decided to submit to the 1910 convention an amendment to the constitution which if passed will admit delegates from the Department of Agriculture of the United States Government.—J. Am. M. Ass., 1909, v. 53, p. 2021.

An editorial (*Ibid.*, 1909, v. 52, p. 2109) referring to the Spanish translation of the U. S. P. and its adoption by the Cuban Government as its official standard, suggests the possibility, if not the advisability, of representation in the Pharmacopœial Convention not only of Cuba but of other Latin-American Republics.

Kraemer, Henry, presents a plea for representation of druggists' associations at the U. S. Pharmacopœial Convention in 1910.—Am. J. Pharm., Phila., 1909, v. 81, pp. 522-524; also Western Druggist, Chicago, 1909, v. 31, pp. 744-745.

An editorial (Pacific Pharmacist, 1909-10, v. 3, p. 36) calls attention to the U. S. Pharmacopœial Convention, and points out that associations that can not be directly represented can readily coop-

erate with associations that are eligible to representation, and can also contribute much in a practical way toward improving the Pharmacopœia.

An editorial (Meyer Bros. Drug., St. Louis, 1909, v. 30, p. 99) predicts that the next revision of the Pharmacopœia will be given far more attention by druggists, both wholesale and retail, than has any previous edition of that standard.

An editorial (Oil, Paint, and Drug Reporter, New York, 1909, v. 76, November 22, p. 7) discusses the change in the status of the Pharmacopœia of the United States, and the interest evidenced by manufacturers and wholesale dealers in the provisions of the Pharmacopœia.

The committee on standards and tests of the U. S. P. and N. F. of the N. W. D. A. asserts that the convention of the ninth revision of the Pharmacopœia, to be held in Washington the 10th day of May next, will be the most notable gathering ever held for the same purpose, and as the results of its labor will establish the legal standards for all drugs and medicines named in the book it issues when sold in the United States and dependencies for the ensuing 10 years, a larger responsibility will rest upon the delegates and the committee chosen by them to complete the work than ever before.—*Ibid.*, 1909, v. 74, Oct. 18, p. 29.

Colle, Bernard, thinks that pharmacopœial revision in the past has been left too much to the scientific men of the colleges, pharmaceutical and medical professors, and that the interests of the retail pharmacists have not been sufficiently guarded and represented.—Proc. New York Pharm. Ass., 1909, p. 174.

Littell, C. S., representing the N. W. D. A., thinks that as the U. S. P. is now the legal standard the best men possible should be selected to look after the interests of the drug trade in the coming convention of the pharmacopœial revision committee.—Proc. New Jersey Pharm. Ass., 1909, p. 18.

The Board of Control of the N. W. D. A. offers in the form of a resolution the recommendation of the committee on standards and tests of the U. S. P. and N. F., that the members of the N. W. D. A. who may be appointed delegates to the pharmacopœial convention form themselves into a committee which shall present the views of this association to that body and pledge the members of the association to the hearty support of all measures taken to secure in the ninth revision of the U. S. P. a more perfect and reliable standard of excellence than has hitherto been obtainable.—Proc. N. W. D. A., 1909, p. 295. See also pp. 159-160.

Sollmann, Torald, says that while under the constitution of the U. S. P. C. the medical profession is entitled to a larger representation than is the pharmaceutical, the chances are all in favor of a bet-

ter actual representation on the part of pharmacists. This inequality could easily be remedied by reducing the number of delegates for both professions. There is little doubt that the present size of the convention is entirely too large for the most effective transaction of its business in the brief time at its disposal.—J. Am. M. Ass., 1909, v. 53, p. 1544.

Kahn, Joseph, thinks that the U. S. P. has certain defects which may be remedied by a better representation of practical pharmacists in the work of revision.—Proc. New York Pharm. Ass., 1909, p. 37.

An editorial note (Am. Druggist, N. Y., 1909, v. 54, p. 228) expresses the belief that it is highly important that the convention and the committee of revision should include intelligent, broad-minded practitioners of medicine of wide information, who can speak with authority as to what medicaments should and should not be included in the National standard.

Beal, J. H., points out that some critics would greatly enlarge the membership of the decennial convention, while others recommend cutting it down to one-third, or less, of its present size. Some believe that the revision and publication of the book should be turned over to the Federal Government, while not a few would willingly see the Government completely excluded from the work.—Midl. Drug., 1909, v. 43, p. 606.

#### 6. COMMITTEE OF REVISION.

Leffmann, Henry, discusses the composition of the committee of revision of the Pharmacopœia, and points out that, in 1900, the pharmacists had passed into substantial control, and that the proportion of actually practicing physicians on the committee of revision for that year was comparatively small.—Am. J. Pharm., Phila., 1909, v. 81, p. 386.

Capps, Pratt, McCrae, and Halsey assert that a reversal of the relative number of clinicians and pharmacists on the pharmacopœial revision committee would seem to be in order. This is a matter to be regarded very seriously and anything which can aid in making the Pharmacopœia more used as a handbook by the profession is well worthy of consideration.—J. Am. M. Ass., 1909, v. 53, p. 791.

An editorial (Meyer Bros. Drug., St. Louis, 1909, v. 30, p. 133) describes the method of revising the Pharmacopœia, and the relation of the committee of revision to the United States Pharmacopœial Convention.

Remington, Joseph P., in an address on the need of unity among pharmacists, reviews the history of the Pharmacopœia, pharmacopœial graft and the question of pharmacopœial publicity.—Am. Druggist, N. Y., 1909, v. 55, p. 337. See also *Ibid.*, p. 324, and Pharm. J., Lond., 1909, v. 29 (83), p. 698.

Kremers, Edward, points out that the national convention in 1900 resolved "That the committee of revision shall report a complete plan for the revision of the Pharmacopœia at the next decennial convention." (U. S. P. VIII, p. xxxiii.) One would naturally expect that a committee of 25 members, who are supposed to have devoted a decade to their work, ought to be in a position to report such a plan. Apparently, however, no such report will be forthcoming.—*Midl. Drug.*, 1909, v. 43, p. 670.

Wilbert, M. I., points out that the present committee of revision is both too large and too small. It is too large for rapid or even prompt work, and it is hopelessly inadequate in point of numbers and specific information, when definite decisions on special questions are involved.—*Am. J. Pharm.*, Phila., 1909, v. 81, p. 569. See also *Midl. Drug.*, 1909, v. 43, p. 683.

Beal, J. H., points out that one school of revision wants to enlarge the committee of revision so that it shall include representatives of all interests that may be affected by the book, while another school would like to see the size of the committee reduced in favor of more accurate workmanship and more speedy completion of the work.—*Midl. Drug.*, 1909, v. 43, p. 606.

An editorial (*Bull. Pharm.*, 1909, v. 23, p. 485) asserts that there seems to be a growing sentiment that the next committee of revision ought to be a smaller and more cohesive body, made up of experts and specialists of different kinds, who are prepared to give a great deal of time to the work and who will be paid properly for their services.

Sollmann, Torald, recommends the division of the work of the revision committee into the following departments: (1) Editorial; (2) admission; (3) pharmacognosy and botany; (4) proximate principles and their chemical assays; (5) volatile and fixed oils and resins; (6) inorganic chemicals, chemical processes and reagents; (7) organic chemicals (including synthetic products); (8) pharmaceutical processes and recipes; (9) pharmacodynamics (including sera and physiological assays); (10) therapeutics (including strengths and doses).—*J. Am. M. Ass.*, 1909, v. 53, p. 1545.

Flemer, Lewis, thinks it would be advisable to have the U. S. P. and N. F. revised by the same committee, or that both committees work in perfect unison and that the books be issued simultaneously.—*Pharm. Era*, 1909, v. 42, p. 637.

Wiley, H. W., indorses the opinion that the revision of the U. S. P. and of the N. F. should go hand in hand, and, if not practicable to have the revision conducted by the same committee, the two committees should at least be closely in touch with each other.—*Ibid.*, p. 638.

Remington, Joseph P., points out that there are a number of changes which should be made in the method of revising the Pharmacopœia. He thinks financial means should be provided for holding

meetings in which the members could come together at least three or four times a year to discuss the important subjects which have to be adjudicated.—*Am. J. Pharm., Phila.*, 1909, v. 81, p. 574.

Rusby, H. H., asserts that the revision of the Pharmacopœia involves original research in new fields, and thinks that the necessary material and work should be paid for from the funds of the pharmacopœial revision convention.—*Midl. Drug.*, 1909, v. 43, p. 687.

The board of control of the N. W. D. A. offer in the form of a resolution the recommendation by the committee on standards and tests of the U. S. P. and N. F., that the committee of revision of the U. S. P. should consist only of experts, one or more of whom should be a practical manufacturing chemist, and one or more a druggist familiar with the drug markets of the world, who will agree to devote a sufficient portion of their time to the prompt and satisfactory performance of their duties, and that members of this committee receive adequate compensation for the services they render.—*Proc. N. W. D. A.*, 1909, p. 294. See also pp. 163-164.

Beringer, George M., thinks that one serious error in the preparation of the Pharmacopœia in the past has been the lack of interest shown by the practical men, who permitted the teachers and theorists to assume all the burdens.—*Am. J. Pharm., Phila.*, 1909, v. 81, p. 392.

Hunt, Reid, points out that with a certain amount of elimination from the Pharmacopœia there would be time for the committee on revision to consider more fully the standard for really important articles, and it might be possible to complete the revision in a shorter time. He states that the determination of standards for what are for the physician articles of minor importance (such as whisky) often requires as much time and work as does that for drugs which are of the utmost value.—*Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, p. 12.

Wilbert, M. I., thinks that the problems which have confronted any previous committee of revision of the Pharmacopœia of the United States have never been as complicated, as numerous, or as important as the problems which will present themselves for solution by the committee of revision to be elected in May, 1910.—*Western Druggist, Chicago*, 1909, v. 31, p. 395.

Remington, Joseph P., in commenting on the paper by Wilbert, on the problems of the pharmacopœial convention of 1910, discusses a number of the problems and outlines ways and means for overcoming them.—*Am. J. Pharm., Phila.*, 1909, v. 81, pp. 572-576.

Rusby, H. H., believes that the first and most important of all requirements in adapting the Pharmacopœia of the United States to the new uses created for it by the Federal food and drugs act is the integrity of those connected with pharmacopœial revision. He

quotes Chairman Remington on the opportunities that the last committee had for taking bribes and points out that if bribes were offered at a time when the authority of the Pharmacopœia was slight and unimportant the opportunities for receiving them will be vastly increased, now that the book is the recognized standard for the articles described therein.—*Midl. Drug.*, 1909, v. 43, p. 685. (See also *Pharm. Era*, 1909, v. 42, p. 631.)

Schimmel, M. S., asserts that the U. S. P. is revised by the manufacturers either directly or indirectly and for their own purpose only. The retail druggists have no representation in the pharmacopœial revision, and they have no one to blame but themselves for the existing evil.—*Pharm. Era*, 1909, v. 42, p. 496.

Jacobi, Abraham, in discussing the revision of the Pharmacopœia, asserts: "There is a feeling that the commission [committee of revision] is often misguided by those having vast pecuniary interests. I say that here because I owe it to the profession of which I have been a member for more than 50 years. I love my profession the more I have any dealings with it. Now, I want that profession to be clean, but I want to make it clean by having clean things to deal with. The Pharmacopœia as it stands to-day is not clean."—*Tr. Am. M. Ass., Sec. Pharm. and Therap.*, 1909, p. 233.

An editorial (*Drug Topics*, New York, 1909, v. 24, p. 337) thinks that the attacks made on the methods of the committee of revision are ungenerous and undeserved. The eighth revision has now been out some years, and we are not through discovering faults in it yet, and with the improvements in methods and processes and the new discoveries in the various branches of science which are made from day to day it is almost an impossibility to bring out a book that will satisfy all.

Bruder, Otto E. F., points out that if the committee will constantly keep in mind the importance of having the physician dictate the scope and the pharmacist define the quality of medicaments contained in the Pharmacopœia, the Pharmacopœia will surely become a book that will appeal to the medical profession as well as to the pharmaceutical profession.—*N. A. R. D. Notes*, 1909, v. 9, p. 282.

#### 7. VALUE OF CRITICISMS.

Beal, J. H., believes that the criticisms that are being made of the Pharmacopœia of the United States are symptoms of a healthy interest that promises well for its future usefulness and a prophecy of new and higher standards in pharmacy and medicine. Even the ignorant criticisms and foolish suggestions have their value as examples. Out of the present contentions will come a pharmacopœia that will be as much in advance of the present one in all-around utility

as the present one is in advance of its predecessors.—Midl. Drug., 1909, v. 43, p. 606.

Wilbert, M. I., points out that no American pharmacopœia up to the present time has been so much or so thoroughly criticized as the now official U. S. P. VIII. He believes that the most severe arraignment to which this Pharmacopœia has been subjected is reflected in the publication of New and Nonofficial Remedies by the American Medical Association and the Additions and Corrections, U. S. Pharmacopœia (8th rev.), May 1, 1907 (*et al.*), published with the approval of the committee less than two years after the publication of the U. S. P., VIII, itself.—Am. J. Pharm., Phila., 1909, v. 81, p. 565.

Beringer, George M., asserts that the masterpiece of to-day becomes to-morrow but the imperfect model for a higher ideal. \* \* \* Pharmacopœial revision is largely the result of criticisms.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 793.

Flemer, Lewis, points out the desirability of systematic criticism of our national standards. Every pharmacist should be willing to report the results of his experiences and make suggestions regarding the possible improvement of formulas, both their composition and manipulation.—Western Druggist, Chicago, 1909, v. 31, p. 339.

Beal, J. H., in an editorial discusses the shifting winds of doctrine, and points out that but a short time before some enthusiastic champions of the U. S. P. and N. F. objected to criticism. Now, however, the wind is blowing just as fiercely in the other direction, and criticisms are being asked for.—Midl. Drug., 1909, v. 43, p. 239.

Greenish, Henry G., in expressing the thanks of the committee of reference in pharmacy for the criticisms that have been received, points out that the more fully proposed changes in the Pharmacopœia are criticised, constructively as well as destructively, the more likely is the Pharmacopœia to represent the views of British pharmacists and to reflect credit on those who have taken part in the work of revision.—Chem. & Drug. Lond., 1909, v. 74, p. 891.

Kremers, Edward, points out that while the revision committee as such has not carried out the instructions voted by the convention in 1900 to "report a complete plan for the revision of the Pharmacopœia at the next decennial convention," one of the Government laboratories has undertaken the collection and publication of all comments and criticisms on the last edition of the U. S. P. In addition, the A. Ph. A. committee on the U. S. P. has presented a lengthy report at the last annual meeting.—Midl. Drug., 1909, v. 43, p. 670.

Remington, Joseph P., asserts that constructive criticism is helpful and necessary, but unjust and false insinuations have a tendency to disrupt pharmacy by causing dissensions and disagreements, and they tend to destroy that unity which is so important at this particular juncture.—Am. Druggist, N. Y., 1909, v. 55, p. 338.

Wilbert, M. I., asserts that honest criticism of men and things has generally been accepted as being a most important factor for progress, and it would be difficult indeed to demonstrate that any righteous cause has been injured by criticism, or that publicity has been other than a factor for progress.—*Western Druggist*, Chicago, 1909, v. 31, p. 395.

## 2. SCOPE.

### 1. NATURE AND CONTENT OF THE PHARMACOPŒIA.

Leffmann, Henry, thinks that the Pharmacopœia is unnecessarily cumbersome and contains a good deal of unnecessary matter. He would like to see the book developed into a national work in the full sense of that expression.—*Am. J. Pharm.*, Phila., 1909, v. 81, p. 387.

Hunt, Reid, believes that the Pharmacopœia should be made to meet as nearly as possible the present-day needs of the medical profession, and that full cognizance should be taken of the fact that the science of medicine is international and that every effort should be made to make the U. S. P. correspond as closely as practicable, in strength of preparations, nomenclature, etc., to international usage.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 794. See also *J. Am. M. Ass.*, 1909, v. 53, p. 502.

Wilbert, M. I., points out that from 1850 to the present time no seriously consistent efforts have been made by the revisers of our Pharmacopœia to adjust its content to the advances made in other branches of medicine or chemistry, and no effort at all appears to have been made to study the economic aspect of the questions involved in the making of the Pharmacopœia.—*Western Druggist*, Chicago, 1909, v. 31, p. 398.

An editorial (*J. Am. M. Ass.*, 1909, v. 53, p. 1645) asserts that a thoroughly up-to-date pharmacopœia, one which will truly reflect the best medical practice of the present time, will contribute more to sane drug therapeutics than any other one thing. Attention is called to the paper of Sollmann.—*Ibid.*, 1543.

Murray, George R., in an address on medical education, says we should do more to reduce the amount of materia medica which a student should learn to a minimum. On the other hand, more time should be devoted to pharmacology and therapeutics. All students should have a thorough knowledge of our chief and well-tried remedies. The list need not be a long one, but he should be able to use them with confidence and even with boldness on suitable occasions.—*Lancet*, 1909, v. 177, p. 979.

Capps, Pratt, McCrae, and Halsey feel that the position taken in the U. S. P. VIII with reference to the advisability of introducing any substance which can not be produced otherwise than under a patented process, or which is protected by proprietary rights, shoul



be maintained. To do otherwise is to admit the thin edge of what would prove to be a very large wedge.—*J. Am. M. Ass.*, 1909, v. 53, p. 791.

Sollmann, Torald, presents a series of motions embodying certain principles of reform which he thinks should be adopted by the pharmacopœial convention.—*J. Am. M. Ass.*, 1909, v. 53, pp. 1544-1545.

An editorial (*Drug Topics*, New York, 1909, v. 24, pp. 209-210) commenting on the lost art of prescribing, asserts that our Pharmacopœia is an anachronism. It contains, of course, plenty of old and well-tried friends, but they are almost swamped in rubbish.

An editorial (*Pacific Pharmacist*, 1909-10, v. 3, p. 325) asserts that while physicians by no means agree, on the agents that are to be employed in the treatment of disease, the next pharmacopœia should be simplified, compacted, and more attention should be given to the really important articles.

Hunt, Reid, points out that in the extensive discussion of pharmacopœial problems the question of how far the Pharmacopœia meets the real present-day needs of the physician has not received much attention. He thinks that especial attention should be given to the means by which they can make their needs and wishes known.—*Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, p. 10.

Solis-Cohen, Solomon, discusses the Pharmacopœia and points out that it is not a work on therapeutics, but a book of processes and standards, giving directions for the making of certain medicines, and giving, in addition, for all drugs, descriptions and tests by which they may be recognized and their identity, their purity, their quality, and their strength be determined.—*Boston M. & S. J.*, 1909, v. 161, pp. 51-52.

Wilbert, M. I., believes that the Pharmacopœia of the United States should be a book of standards, or a repository of information, regarding all that is really valuable in materia medica.—*Merck's Rep.*, 1909, v. 33, p. 206.

An editorial (*Pacific Pharmacist*, 1909-10, v. 3, p. 325) asserts that there are many articles in the Pharmacopœia of the United States which have a very limited use in medicine, so limited in fact that they should not be included, for the simple reason that the descriptions take up space which could be devoted to better purposes.

Mittelbach, Wm., expresses the hope that many of the compound preparations now appearing in the Pharmacopœia and National Formulary will be dismissed, and that they will appear only on the prescription blank of the practitioner.—*Proc. Missouri Pharm. Ass.*, 1909, p. 111.

Hunt, Reid, calling attention to the recommendations of the several sections of the A. M. A., notes that there is nothing in these reports to indicate that representative medical men feel a need for the

complex proprietary mixtures which the last committee of revision endeavored to meet by the inclusion of formulas for similar mixtures.—*J. Am. M. Ass.*, 1909, v. 53, p. 1501.

Kaczoroski, A. O., thinks the editors of the U. S. P. and N. F., with all due respect to their high attainments, should be original; they should not rely on imitations of standard proprietary remedies to make the work as successful as they would like to see it.—*Proc. Louisiana Pharm. Ass.*, 1909, p. 48.

Hynson, Hy. P., thinks that the committee did itself very little credit when it admitted to the U. S. P. VIII such things as acetanilide compound, cataplasm of kaolin, elixir of iron, quinine and strychnine, and antiseptic solution. He thinks the compound has got to go out of the Pharmacopœia and into the National Formulary.—*Proc. Nebraska Pharm. Ass.*, 1909, p. 28.

He presents a resolution favoring the deletion of compound preparations from the U. S. P. and their inclusion in the National Formulary.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 157.

Wilbert, M. I., in discussing the problems of the pharmacopœial convention for 1910, presents some suggestions on the scope of the Pharmacopœia, based on its history.—*Am. J. Pharm.*, Phila., 1909, v. 81, pp. 565-571.

Remington, Joseph P., does not believe that harking back to the pharmacopœia of 1820 or previous pharmacopœias is of much practical value, so far as the scope and content of the pharmacopœia are concerned. No previous committee of revision has been obliged to contend with the peculiar conditions which exist at present.—*Ibid.*, p. 575.

Kremers, Edward, in a book review, points out that the U. S. P. is approaching what may be called a crisis in its history of revision. The next few years may prove as momentous to the revision of the U. S. P. as was the year 1830, when there was danger of rival pharmacopœias, as was the year 1880, when the foundation of the present Pharmacopœia was laid by the pharmacists of this country.—*Midl. Drug. and Pharm. Rev.*, 1909, v. 43, pp. 253-254.

An editorial (*Pacific Pharmacist*, 1909-10, v. 3, p. 180) asserts that doctors and patients alike are entitled to the very highest and best that pharmacy can offer, and that for these reasons the U. S. P. should be adapted to the qualifications of the graduates of pharmaceutical colleges, irrespective of whether the average pharmacist can or can not carry out all or any of the directions that are embodied in the book.

Oldberg, Oscar, points out that the Pharmacopœia of the United States might be made more helpful to the pharmacist than it is.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 428.

Schimmel, M. S., asserts that the retail druggists of the country need a real pharmacopœia by retail druggists and for retail druggists. He thinks it is time for retail druggists to get down to real work and not let the other fellow do the work and the thinking for them.—Pharm. Era, 1909, v. 42, p. 496.

Main, Thos. F., chairman, believes that the question as to what drugs and chemicals shall or shall not be admitted into the Pharmacopœia may well be left to those delegates representing the medical and pharmaceutical professions, the former being able to authoritatively state the needs of the physicians and the pharmacists being able to speak for their large constituency, the public and its demands for household remedies.—Proc. N. W. D. A., 1909, p. 161.

An editorial (Western Druggist, Chicago, 1909, v. 31, p. 727) expresses the opinion that physicians should have particular prominence in deciding what drugs or preparations should be made official, the actual work of revision, the processes, the standards, and the tests must be left, as it has been for half a century, to the pharmacists.

Sollmann, Torald, describes the vicious circle by which the Pharmacopœia has become so predominantly pharmaceutical in its tone and contents as to be really of minor importance to the physician. Physicians take no interest in pharmacopœial revision, because the Pharmacopœia does not represent their vital interests; and the Pharmacopœia does not represent their interest because they take no interest in its revision.—J. Am. M. Ass., 1909, v. 53, p. 1544.

The editor of the "Pharmacology" column (J. Am. M. Ass. 1909, v. 53, p. 2113) calls attention to the general principles adopted by the therapeutic committee of the Brit. M. Ass. as showing the trend of opinion toward therapeutic usefulness as an important criterion for admission to the Pharmacopœia.

Hatcher, R. A., points out that while no one denies the shortcomings of the Pharmacopœia, one hears many more complaints of the superabundance of official substances than of omissions.—Drug. Circ., N. Y., 1909, v. 53, p. 571.

Murray, B. L., finds that the Pharmacopœia includes a number of articles that have no legitimate use as medicine. He asserts that the inclusion of such articles obscures the real issue and interferes to that extent with our work on important articles. He suggests that the committee drop such articles, as a class, from the book, thereby disposing at once of the questions of limits of purity for them.—Am. Druggist, N. Y., 1909, v. 55, p. 308.

Gordin, H. M., expresses the belief that a drug that is devoid of known active constituents should not be in the Pharmacopœia. He believes that pharmacists should be in position to prove the identity of every substance dispensed, whether the substance has great or little physiological activity.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 43.

Rusby, H. H., asserts that if the Pharmacopœia of the United States is to be of service as a national standard it must include all drugs that are used to any considerable extent.—Pharm. Era, 1909, v. 42, p. 632. See also Am. Druggist, N. Y., 1909, v. 55, p. 381.

Oldberg, Oscar, thinks the Pharmacopœia should include only therapeutic simples, or, in other words, unmixed drugs and chemicals and simple rational preparations representing single active drugs, such as tinctures, fluid extracts, solid extracts, etc.—Pacific Pharmacist, 1909-10, v. 3, p. 330.

Kebler, L. F., in discussing the scope of the Pharmacopœia, asserts that the elimination therefrom of little-used remedies appeals to him in a way because of the fact that when manufacturers of so-called patent medicines are given hearings in which the worthlessness of a drug is pointed out, they frequently assert that the drug "is recognized in the Pharmacopœia; it is approved by the medical and pharmaceutical professions."—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, pp. 213-214.

Hynson, H. P., questions the desirability of having statistics control the contents of the Pharmacopœia. He thinks we have reached that stage in pharmacology where we should seek something higher than that. Its mere local or international popularity does not seem enough to determine whether or not a substance should be introduced into the Pharmacopœia.—*Ibid.*, p. 215.

Bruder, Otto E. F., indorses the opinion expressed by Wilbert to the effect that the medical man should insist that a more distinct division be made between pharmacopœial matters proper and the chemical tests.—N. A. R. D. Notes, 1909, v. 9, p. 283.

Members of the Philadelphia College of Pharmacy are reported as having adopted the following resolutions:

Whereas the development of the Pharmacopœia of the United States along purely scientific lines is necessary adequately to reflect the progress and practice of American medicine: Now, therefore, be it

*Resolved*, That it is the sense of the members here present that the admission of articles to the U. S. P. IX be referred to a special committee of physicians representing clinicians, teachers, and laboratory workers; and be it further

*Resolved*, That the committee on revision be requested to give prompt publicity to its conclusions so as to permit of a full and free general discussion before the final adoption of the text for the Pharmacopœia.—Pharm. Era, 1909, v. 42, p. 685.

Wilbert, M. I., discusses the relation of New and Nonofficial Remedies to the Pharmacopœia of the United States, and points out that the former publication contains much in the nature of preparatory work for the committee of revision of the U. S. P.—Merck's Rep., 1909, v. 18, pp. 206-207.

Wooyenaka, Keizo, points out that in the Ph. Japon. III articles that are required by law to be kept at all times in every dispensary and pharmacy are indicated by special marks in the title.—*Am. Druggist*, N. Y., 1909, v. 54, p. 261.

Remington, Joseph P., is reported as presenting a paper accompanied by tables showing admissions and rejections from one decade to the next, and the influence, particularly of organic chemistry, in the last 20 years.—*Pharm. J., Lond.*, 1909, v. 28 (82), p. 769.

## 2. NOMENCLATURE.

Beringer, George M., refers to the desirability of having the co-operation of the American Chemical Society and the American Medical Association for the universal adoption and adherence to the pharmacopœial spelling and nomenclature as the official and legal standards for such.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 490. See also *Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 218, and *Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, pp. 20–21.

An editorial (*Meyer Bros. Drug.*, St. Louis, 1909, v. 30, p. 35) calls attention to frequent abuses of pharmacopœial titles, and points out that "spirits" do not exist in the Pharmacopœia, at least not in the manner in which the word "spirits" is usually employed by retail druggists: "Spirits nitrous ether" and "aromatic spirits ammonia."

Gordin, H. M., thinks that nomenclature in itself is not of such great importance, but that uniformity is most desirable, and the pharmacopœial nomenclature should agree with that of the scientific societies of the land. He also expresses the belief that it is no longer feasible to keep the alkaloids as a distinct class and to characterize them by special nomenclature.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 29.

Puckner, W. A., thinks it would be practical to adopt for the alkaloids a nomenclature similar to ammonia and ammonium salts. In this plan we would have morphia and morphium chloride parallel in nomenclature with ammonia and ammonium chloride.—*Ibid.*, p. 29.

Kebler, L. F., calls attention to the dishonesty of many geographic names of medicinal preparations.—*J. Am. M. Ass.*, 1909, v. 52, p. 1396.

Mittelbach, William, makes a number of comments on pharmacopœial nomenclature, and makes sundry suggestions for improving the same.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, pp. 60–61.

Goodman, F. M., discusses pharmacal names and presents a plea for greater simplicity in pharmacopœial titles. He suggests a unique system for constructing terms which would be brief and yet chemically descriptive.—*Bull. Pharm.*, 1909, v. 23, pp. 59–60.

Hunt, Reid, believes that the difficulties involved in making reforms in the present pharmacopœial nomenclature or of preventing

confusion in the future are too great for any country to undertake successfully alone. The only possibility of success lies in a comprehensive international agreement. He points out that botanists, zoologists, anatomists, and chemists have established international systems of nomenclature in their sciences, and asks why should not similar action be taken in regard to the Pharmacopœia.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 16.

Solis-Cohen, Solomon, thinks the pharmacopœial convention should direct the committee of revision to appoint a special committee upon international nomenclature, which should cooperate with similar committees, to be appointed by the proper authorities, legal or scientific, of other countries.—Boston M. & S. J., 1909, v. 161, p. 62.

Wilbert, M. I., asserts that the matter of international nomenclature and international standards generally received much more attention in the earlier revisions of the U. S. P. than in the later ones, and illustrates by quoting extracts from the prefaces of several of the earlier pharmacopœias.—Merck's Rep., 1909, v. 18, p. 207.

Hynson, Henry P., thinks that the more radical revision of the Pharmacopœia would suggest the use of the English title as the chief title, putting the Latin title in the secondary place.—Drug Topics, New York, 1909, v. 24, p. 196.

Hallberg, C. S. N., thinks that the diacritic signs that appeared in the Latin titles and scientific names in the index in former editions of the U. S. P. are missed and should be added.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 798.

Wetterstroem, Theo. D., points out that to obtain pharmacopœial quality of a drug substance it is necessary to purchase it under some qualifying term as medicinal, pharmacopœial, purified, or some name that will indicate to the seller that the article in question is to be used for medicinal purposes. It is only upon labeling the same under its qualified term that the tests of the Pharmacopœia become operative.—Midl. Drug., 1909, v. 43, p. 186.

Motter, M. G., points out that the pharmacopœias of the world are quite inconsistent so far as nomenclature is concerned, and calls attention to the names for quinine hydrochloride included in the several national pharmacopœias.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 209.

"Fr. Kr." points out a number of inconsistencies in the nomenclature of the Ph. Germ. IV, and suggests that these be corrected in the forthcoming edition of the Pharmacopœia.—Apoth. Ztg., Berl., 1909, v. 24, p. 688.

An editorial note (National Druggist, 1909, v. 39, p. 7) points out that the Latin names adopted by the Ph. Svec. IX for chemical substances differ considerably from those with which we are acquainted in our own Pharmacopœia. Thus, the Latinized name of potassium

bromide is *brometum kalicum*, morphine hydrochloride is *chloretum morphicum*, codeine phosphate is *phosphor codeicus*, and so on.

Mayo, Caswell A., in a review of the French Codex points out that the Latinity of the nomenclature is in consonance with the German model, and not with that of the U. S. P.; thus we have, for instance, "*natrium bicarbonicum*" instead of "*sodii bicarbonas*."—*Am. Drug-gist*, N. Y., 1909, v. 54, p. 232.

"ndj" in a review of the *Ph. Serb. II* points out that a large number of synonyms have been omitted from the present edition of the *Servian Pharmacopœia*.—*Pharm. Post*, Wien, 1909, v. 42, p. 1030.

An editorial (*New York M. J.*, 1909, v. 89, p. 1205) asserts that, on the whole, the Spanish edition of the U. S. P. will make a favorable impression, though the Latinity of the nomenclature is not at all in accord with European models, and is perhaps open to adverse criticism.

Henkel, Alice, discusses some changes in botanical nomenclature of the U. S. P., and calls attention to several misnomers that occur in that book.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 766–768.

Day, W. B., thinks that the botanical nomenclature of the *Pharmacopœia* should conform to the usages of the botanical societies.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 30.

A number of propositions relating to the amendment and completion of the International Rules of Botanical Nomenclature, adopted by the International Botanical Congress of Vienna in 1905, are presented.—*Bull. Torrey Bot. Club*, Chicago, 1909, v. 36, pp. 55–63.

Rusby, H. H., discusses the rules of botanical nomenclature and points out that while the printed rules fill a small pamphlet the interpretations of the rules sometimes differ, even among experts. He thinks that the use of the author's name, when not required by duplicate use of the binomial, is a barbarity in a working system.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 673–677.

Rosenheim and Koppel present suggestions on the systematic naming and registering of inorganic compounds.—*Chem. Ztg.*, Cöthen, 1909, v. 33, pp. 101–103; 110–112. See also (*Ibid.*) comments by Jordis, Stock, and Hallerbach.

A committee of Section III, Second International Congress for the Suppression of Adulteration, discusses the significance of official names and titles and outlines what it deems to be the function of the congress in the premises.—*Bull. sc. pharmacol. Par.* 1909, v. 16, p. 421.

Beal, J. H., points out that in the National Formulary there are certain faults of nomenclature. The framers naturally followed popular usage in naming preparations but popular usage is not exact enough for legal purposes, and amendment in this particular is necessary.—*Midl. Drug.*, 1909, v. 43, p. 240.

Wiley, H. W., thinks that the nomenclature of the National Formulary is in need of careful revision, and asserts that, so far as the committee on the National Formulary is concerned, it is clearly a case of "noblesse oblige."—Bull. Am. Pharm. Ass., 1909, v. 4, p. 121.

Kebler, Lyman F., in criticizing the nomenclature of the National Formulary, asserts that what was accepted as being proper three years ago is now illegal, and that names long in use but defective should be changed so as to bring them in harmony with the legal requirements.—*Ibid.*, p. 120. See also J. Am. M. Ass., 1909, v. 52, pp. 1393–1397.

Beringer, George M., thinks that the hypercritical position taken by some regarding the present National Formulary titles is most unfortunate, but announces that the National Formulary committee has already voted to change a number of titles.—Apothecary, 1909, v. 21, August, p. 19.

Hallberg, C. S. N., in discussing names of preparations which are not indicative of the active constituents, points out that it is the physicians prerogative to use and prescribe preparations of this kind under such names as are satisfactory to him.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 224.

An editorial note (Meyer Bros. Drug, St. Louis, 1909, v. 30, p. 100) expresses the belief that it is likely that in revising the National Formulary some of the old-time names and many of the new ones will be revised in accord with the present spirit of honest labels.

Meyer, Martin T., thinks some means should be adopted whereby new remedies could be taken up under the name under which the medical profession, as well as the pharmacists, have known them for years, and questions whether the stand taken by U. S. P. VIII was practical.—Proc. Connecticut Pharm. Ass., 1909, p. 69.

Prinz, Hermann, recommends that shorter titles or synonyms should be given to the following drugs: acetphenetidin, hexamethylenamine, sulphonethylmethane and sulphonmethane.—J. Am. M. Ass., 1909, v. 53, p. 796.

Beringer, George M., thinks that pharmacopœial titles for synthetic compounds present great difficulty, as the full chemical name would, as a rule, be too complicated and inconvenient for use. He thinks that while the contraction of the chemical name has been much criticized, yet it is believed to give the best result that can be obtained under the circumstances.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 795.

Remington, Joseph P., in discussing the nomenclature of the Pharmacopœia, points out that in prescriptions the names of preparations are always abbreviated; even the simple word "tincture" is always "tinct." or "tr." The full names of pills are never given in prescriptions. He can see no reason why physicians can not abbreviate



viate these long chemical names with equal facility.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 208.

Hunt, Reid, points out that in connection with nomenclature of new and partially protected drugs, most pharmacopœias have adopted the name under which the drug has become known in medical literature, provided the name has become free; otherwise they have as a rule adopted the true chemical name. Thus we find in most pharmacopœias such names as "phenacetin," "sulphonal," "saccharin," "antipyrin," etc.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 14.

Wooyenaka, Keizo, in reviewing the Japanese Pharmacopœia, points out that in this pharmacopœia the chemical substances obtainable only by a patented process have been adopted under their chemical names, and a comparative list of official and popular names has been furnished as a table in the appendix.—Am. Druggist, N. Y., 1909, v. 54, p. 260.

Gehe & Co. (Handelsbericht, 1909, p. 44) point out that despite the inclusion of a number of proprietary names of German chemicals in the Japanese Pharmacopœia the manufacturers of these chemicals have been accorded protection under the trade-mark laws of Japan.

The committee on the United States Pharmacopœia of the American Medical Association emphasizes the desirability of having the names under which new drugs are admitted to New and Nonofficial Remedies carefully considered, and points out the need for considering the practices of foreign pharmacopœias, because of the difficulty of effecting a reform in the names of drugs which have once come into general use.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 222.

Wilbert, M. I., calls attention to some of the difficulties arising in connection with nomenclature of new remedies because of the differences of patent and trade-mark laws in different countries.—Western Druggist, Chicago, 1909, v. 31, p. 397.

An unsigned article asserts that the trade-mark name expires with the patent, and points out that where the name used as a trade-mark is suggestive of the character of the goods either in spelling or in sound, the trade-mark rights will not be supported in the courts. These several assertions are illustrated by quotations of recently rendered decisions.—Practical Druggist, 1909, v. 25, p. 88.

Fourneau, Ernest, presents an interesting survey of the question of trade-marks in matters pharmaceutical.—Bull. sc. pharmacol. Par. 1909, v. 16, pp. 330-338, 412-420.

### 3. COST AND SIZE.

Capps, Pratt, McCrae, and Halsey recommend a reduction in the size of the Pharmacopœia, possibly the omission of the appendix.—J. Am. M. Ass., 1909, v. 53, p. 791.

Leffmann, Henry, thinks that the size of the Pharmacopœia could be materially reduced without interfering with its usefulness. He points out that many of the analytic processes could be included in special bulletins as is now done in food analysis work.—*Am. J. Pharm., Phila.*, 1909, v. 81, p. 388. Also *Boston M. & S. J.*, 1909, v. 160, p. 624.

Wilbert, M. I., thinks that the medical man should insist upon a more distinct division between pharmacopœial matters proper and chemical tests. Much of the material now in the Pharmacopœia itself could be relegated to an appendix, and thus divide the Pharmacopœia into two volumes; one, the Pharmacopœia proper, which the physicians could use and which would contain all the information he wanted, while the combined volumes should contain all the information the pharmacist needs and must have.—*J. Am. M. Ass.*, 1909, v. 53, p. 792.

Conner, L. A., thinks that a volume not one-third of the size of the present one would serve the physician well. He believes that the whole matter of the introduction of new drugs should be properly in the hands of the Council on Pharmacy and Chemistry. This Council might publish yearly, or frequent, bulletins to aid them in the selection of comparatively new remedies.—*Med. Rec., N. Y.*, 1909, v. 76, p. 38.

Bruder, Otto E. F., points out that physicians have often expressed the desire that a greatly abridged edition of the Pharmacopœia be published, that the more trustworthy and useful of the modern synthetic drugs be included, and that at yearly intervals a bulletin be published recording changes, introductions, and omissions.—*N. A. R. D. Notes*, 1909, v. 9, p. 283.

Kilmer, Fred. B., suggests that the Pharmacopœia should be made in two volumes, the first part to contain the drugs, preparations, formulas, and doses; the second part to be in effect a laboratory manual.—*Proc. New Jersey Pharm. Ass.*, 1909, p. 111.

Hallberg, C. S. N., points out that the pharmacopœias of various countries are mostly larger in proportion than ours. The French Codex contains almost twice as many official articles as ours, while even the Pharmacopœia of the little Republic of Switzerland is almost as large as our own.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 28.

Rusby, H. H., thinks that, as the convention has but one source of revenue, namely, the sale of the Pharmacopœia, and since added sums of money are necessary to make this book acceptable, the only rational conclusion is that the book must hereafter be sold at a price sufficient to yield funds for satisfactorily performing the work of revision.—*Midl. Drug.*, 1909, v. 43, p. 687.

Remington, Joseph P., in discussing the Spanish translation of the United States Pharmacopœia, points out that this book contains

25 more pages than the English edition, due largely to the increased number of words made necessary by using the Spanish language. The mechanical execution of the book is as near that of our Pharmacopœia as it could be made.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 663.

#### 4. PUBLICITY.

Leffmann, Henry, thinks that during the preparation of the revision of the Pharmacopœia the work should be brought before the public for discussion through publication of the more important suggested changes in the leading medical and pharmaceutic journals. He points out that in this manner important criticism will be available, some errors and inconsistencies will be avoided, and no injury would be done to anyone.—Am. J. Pharm., Phila., 1909, v. 81, p. 388.

He also asserts that the revision of the Pharmacopœia should not occupy over one year. During the preparation of the revision the work should be brought before the public.—Boston M. & S. J., 1909, v. 160, p. 624.

Kraemer, Henry, thinks that publicity is what every one connected with Pharmacopœial revision should seek, and that every discussion points to the necessity of fixing responsibility for delays and for mistakes, and of determining also where good judgment was exercised and faithful work performed.—Am. J. Pharm., Phila., 1909, v. 81, p. 594.

Wilbert, M. I., in commenting on the need of publicity, points out that even on the very eve of the pharmacopœial convention of 1910 it is not definitely known who is to be blamed or credited in connection with the shortcomings and advances manifested in the U. S. P. VIII, and that this is clearly unjust to the members of the revision committee.—*Ibid.*, p. 570.

Murray, B. L., in a plea for publicity points out that laws are not generally passed behind closed doors, and that there is good reason why every pharmacist, physician, and user of the Pharmacopœia, should have an opportunity to know fully about it, and should in some way have in advance a voice directing how it shall be written.—Am. Druggist, N. Y., 1909, v. 55, p. 308.

Remington, Joseph P., in discussing the question of publicity is reported as saying that such a course would take 99½ years to revise the Pharmacopœia; he also asserted that for 20 years the revision committees could not get any information as to the methods of the manufacturers and chemists in their employ. But since the passage of the pure food and drugs act they must come up and tell us, and the result is that not only was the last committee given much valuable

assistance, but it looks as though the next committee would be swamped with offers of assistance.—*Am. Druggist*, N. Y., 1909, v. 55, p. 324.

An editorial (*Bull. Pharm.*, 1909, v. 23, p. 488) commenting on the assertion that manufacturers gave no help or information to the revisers of the *Pharmacopœia* until that book suddenly became a legal standard, expresses the belief that this assertion is contrary to the truth and exceedingly ungenerous.

Rusby, H. H., thinks that public discussion of all important changes that are to be made in the *Pharmacopœia* will be necessary to make future editions acceptable as standards under the food and drugs act.—*Midl. Drug.*, 1909, v. 43, p. 685. Also *Pharm. Era*, 1909, v. 42, p. 632.

Diekman, George C., thinks that publicity before adoption would be desirable, and points out that the committee would be under no compulsion to reply to criticisms, but merely to receive them, making use of the good ones and ignoring the poor ones.—*Am. Druggist*, N. Y., 1909, v. 55, p. 323.

The board of control of the N. W. D. A. offer, in the form of a resolution, the recommendation of the committee on standards and tests of the U. S. P. and N. F., that public notice of all proposals for changes and tests be given in the pharmaceutical press before adoption.—*Proc. N. W. D. A.*, 1909, p. 295. See also p. 164.

Sollmann, Torald, suggests that the revision committee should seek advice openly, and give opportunity for the public discussion of its findings before these are officially adopted.—*J. Am. M. Ass.*, 1909, v. 53, p. 1545.

An editorial (*Am. Druggist*, N. Y., 1909, v. 55, p. 240) commenting on pharmacopœial revision asserts the belief that there is a genuine and entirely reasonable demand for an increased degree of publicity in all proceedings of the committee of revision, and expresses the opinion that the ultimate results of such publicity would be to the advantage and not to the detriment of the *Pharmacopœia*.

Remington, Joseph P., says that important changes recommended by subcommittees could be sent to pharmaceutical and medical journals before final publication of the book, and that such publicity would give, within reasonable limits, information which would prevent any great errors from creeping into the book.—*Am. J. Pharm.*, Phila., 1909, v. 81, p. 574.

An editorial (*Am. Druggist*, N. Y., 1909, v. 55, p. 334) points out that the fact that the chairman is willing to concede that the preliminary publication of changes may be advantageous will be welcome news to all who have taken an interest in this important phase of pharmacopœial revision.

Wilbert, M. I., asserts that with the publicity that has been given, and that it is proposed to give in the future, to the deliberations of the committee on National Formulary, the pharmacists of this country will have no reasonable excuse for neglecting to take an active part in the revision of that book and practically controlling every step that is taken.—*Southern Pharm. J.*, 1908–09, v. 1, p. 497.

#### 5. TIME OF PUBLICATION.

Albers, W. W., thinks that, in view of the fact that the U. S. P. VIII did not appear until five years after the convention of 1900, steps ought to be taken looking toward a more prompt revision.—*Proc. Wisconsin Pharm. Ass.*, 1909, p. 12.

Remington, Joseph P., asserts that for many reasons two years more time was consumed in issuing this revision of the U. S. P. than usual.—*Southern Pharm. J.*, 1908–09, v. 1, p. 556.

Leffmann, Henry, thinks the Pharmacopœia should be revised every five years, as progress in pharmacy and medicine is too rapid for a ten-year interval.—*Am. J. Pharm.*, Phila., 1909, v. 81, p. 388.

Lacey, Richard H., objects to the proposed revision of the Pharmacopœia every five years, and points out that too frequent changes of the standards would retard rather than hasten the more widespread use of the Pharmacopœia.—*Apothecary*, 1909, v. 21, August, p. 18. Also *Proc. Pennsylvania Pharm. Ass.*, 1909, p. 246.

LaWall, Charles H., thinks that the objections that have been raised to a more frequent revision of the Pharmacopœia probably will never obtain again. In the future the changes will consist merely of additions and dismissals, and those require little or no notice to be sent to the physician for he is constantly prescribing things not in the Pharmacopœia.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 247.

A news note reprints the bill for Federal publication of the Pharmacopœia of the United States, which was introduced in Congress by Representative Coudrey, of Missouri.—*Oil, Paint, and Drug Reporter*, New York, 1909, v. 76, Dec. 13, p. 28F.

An editorial (*Drug Topics*, New York, 1909, v. 24, p. 369) asserts that up to the present there does not seem to be any very great need, upon the part of those interested, for Government publication of the Pharmacopœia, and the date is far distant when such a procedure will be consummated. There is too much idealism and not enough practical every-day judgment in movements of this kind.

#### 6. DOSES.

Meyer, Martin T., thinks the Pharmacopœia should stand as an authority as to dosage, the average dose being vague and uncertain. He states that if the Pharmacopœia is to take up the subject of

dosage at all, it should give a standard for maximum single and daily doses.—Proc. Connecticut Pharm. Ass., 1909, p. 70.

Hallberg, C. S. N., thinks that a list of potent substances for reference as to poisons, and legislation, and a classification of articles and their preparation should be added to the Pharmacopœia.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 798.

Sollmann, Torald, recommends the inclusion in the Pharmacopœia of a table of official maximum doses, with the statement that its insertion is not intended to limit the right of the physician to prescribe larger doses, but as a protection to him as well as to the public and the dispenser against accidental errors.—J. Am. M. Ass., 1909, v. 53, p. 1545.

An editorial (Bull. Pharm., 1909, v. 23, p. 139) commenting on the inclusion of doses in the U. S. P., expresses the belief that average doses are a mistake and of little value. Minimum and maximum doses, on the other hand, would be of great assistance to the pharmacists in the dispensing of prescriptions where the dosage is more or less questionable.

Murrell, William, in discussing rheumatic fever and its treatment, expressed the belief that drugs, particularly salicylates, are frequently administered in insufficient doses and that the physician in the treatment of his patient is often hampered by his knowledge of the Pharmacopœia.—Merck's Arch., 1909, v. 11, p. 119.

An editorial (Bull. Am. Pharm. Ass., 1909, v. 4, p. 453) expresses the belief that while the matter of dosage appears to be a medical question, the pharmacist is in far better position to decide the average dose than is the physician who is guided by his own experience, which may be much at variance with others.

Forrester, G. P., calls attention to some dosage difficulties and comments, more particularly on the maximum dosage tables included in various pharmacopœias.—Chem. & Drug., Lond., 1909, v. 75, p. 346.

An editorial (National Druggist, 1909, v. 39, p. 7) points out that the Ph. Svec. IX contains a table of maximum adult doses of potent preparations, also a similar table to be used in the dispensing of veterinary prescriptions, the maximum doses for the several domestic animals being given.

Wooyenaka, Keizo, points out that in the Ph. Japon. a table of potent medicines is given with doses for adults, which should not be exceeded unless the physician especially so instructs on his prescription.—Am. Druggist, N. Y., 1909, v. 54, p. 261.

A correspondent points out that the Ph. Fr. V includes a table of maximum doses for the first time in its history, and when the physician believes that this dose ought to be exceeded he will be expected to attract attention by adding "Je dis telle dose" ("I intend this dose").—Practical Druggist, 1909, v. 25, p. 11.

An editorial (N. York M. J., 1909, v. 89, p. 1103) notes that the inclusion of a list of maximum doses in the Ph. Fr. V will perhaps not meet with the approval of the medical profession in America.

An editorial (Lancet, 1909, v. 177, p. 560) calls attention to the argument of Benjamin Moore (Bio-Chem. J., 1909, v. 4, pp. 323-329) on the fallacy of setting the dose of a drug in relation to the body weight of the subject of treatment. According to this, the usual method of calculating the dose gives a result four times too high.

"Pomp" discusses the need for greater uniformity in determining the maximum doses of potent medicaments for children.—Pharm. Ztg., Berl., 1909, v. 54, pp. 91-92.

Stoepel, Paul, presents a number of suggestions on approximate dose measures and drops.—Apoth. Ztg., Berl., 1909, v. 24, p. 959.

#### 7. ANTIDOTES.

Lewin, L., in a paper read before the International Medical Congress at Budapest, discusses poisons and antidotes, their behavior in the body, and their probable method of action.—Chem. Ztg., Cöthen, 1909, v. 33, p. 997 ff.

Eppinger and Tedesco present a contribution to our knowledge of acid poisoning and the influence of diet on various animals.—Biochem. Ztschr., Berl., 1909, v. 16, pp. 207-216.

Falta and Ivovic (Berl. klin. Wchnschr., 1909, p. 1929) assert that adrenalin is a powerful antidote to strychnine. They are at present engaged in making observations on the antidotal properties of adrenalin to other poisons.—Apoth. Ztg., Berl., 1909, v. 24, p. 817.

Gadd, Wippell, comments on some of the problems of the poisons schedule.—Year-Book of Pharmacy, Lond., 1909, pp. 292-297.

#### 8. WEIGHTS AND MEASURES.

An editorial (Am. Druggist, N. Y., 1909, v. 54, p. 328) points out that the pharmacopœial abbreviation for the words "cubic centimeter" furnishes a good example of the confusion worse confounded that has followed from the independence exhibited by medical and pharmaceutical writers. The official abbreviation is Cc., and this is variously corrupted to "c. c." "c. cm." and "mil."

Havenhill, L. D., calls attention to the fact that most metric graduates are very inaccurate for the fractions of the first cc. and, as a carefully calibrated pipette is frequently not at hand, suggests the making of stock solutions.—Proc. Kansas Pharm. Ass., 1909, p. 63.

Flemer, Lewis, thinks that alternative weights and measures, also parts by weight and parts by volume should be omitted from the N. F., and a table of equivalents should appear in the front or back

of the National Formulary, as well as of the U. S. Pharmacopœia, for the convenience of those who desire to transpose the quantities.—*Western Druggist*, Chicago, 1909, v. 31, p. 339. Also *Apothecary*, 1909, v. 21, June, p. 29.

Bruder, Otto E., thinks it was a wise precaution that the third edition of the National Formulary gave both the metric and apothecary's system of weights and measures, and believes that this arrangement suits the great majority of the pharmacists of this country.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 964.

Sears, O. W., protests against the proposed rejection from the National Formulary of "equivalents." He thinks there is no good reason for the change and that it would be directly favoring a handicap for a great majority of our apothecaries.—*Drug. Circ.*, N. Y., 1909, v. 53, p. 84.

Wooyenaka, Keizo, in a review of the *Ph. Japon.* III, points out that the proportions are always ordered by weight; for instance 1:10 means 1 part to 10 parts by weight, thus avoiding the reference to specific gravity where liquids come into consideration.—*Am. Druggist*, N. Y., 1909, v. 54, p. 261.

Tocher, J. F., thinks that in the use of the word "part" and the definition of the word "minim" precision of language is desirable. It should always be clear to the reader that either parts by weight or parts by measure is meant when "parts" are stated. He also points out that the student who wishes to verify that a "minim" is the volume at 62° F. of "0.9114583 grain of water" must, after trial, look with admiration and awe on the chemist who makes such wonderful weighings.—*Year-Book of Pharmacy*, Lond. 1909, pp. 229-230.

Kremers, Edward, reports some personal experiences in the introduction of metric weights and measures.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 486-487.

#### 9. OBJECT AND USES.

Oldberg, Oscar, in a communication entitled "Why and What is the Pharmacopœia," points out that comparatively few men have any well-defined conceptions of the Pharmacopœia and the real reason for its existence, and what might be done to insure substantial agreement concerning its general scope and functions.—*Pacific Pharmacist*, 1909-1910, v. 3, pp. 328-331.

An editorial (*Ibid.*, p. 324) calls attention to the above article and points out that in Germany, Sweden, Austria, Japan, and other civilized countries all pharmacists are educationally qualified to use the Pharmacopœia, and suggests that it is high time that requirements in the United States were made equally stringent.

Schimmel, M. S., asserts that the U. S. P. and N. F. are not books for the retail druggist, because 98 per cent of the retail druggists are



only distributors for the different manufacturing houses.—Pharm. Era, 1909, v. 42, p. 496.

An editorial (J. Am. M. Ass. 1909, v. 53, p. 1824) asserts that few, if any, public-health measures are of more direct importance than efficient regulation of the purity and identity of widely recognized medicaments and reasonable regulation of their use or, at least, restriction of their abuse. To secure a fuller appreciation of the uses and limitations of drugs is to benefit the public at large as well as to advance the development of the science of medicine.

An editorial (Apothecary, 1909, v. 21, December, p. 13) points out that all of the special interests involved in the revising of the Pharmacopœia must agree that the paramount interest is that of the public, and that interest demands that all the special knowledge of doctor, druggist, and manufacturer shall be contributed fully and unselfishly to make the U. S. P. the most perfect collection of medicinal standards ever published.

An editorial (Am. Druggist, N. Y., 1909, v. 55, p. 334) asserts that if the Pharmacopœia is to be a universal standard, it must be used as a standard for drugs which reach the consumer regardless of whether they are prescribed by physician or not.

Wilbert, M. I., points out that the Pharmacopœia is an important weapon for the combating of quackery and the protection of the public health, and now that its content has the added support of law, it is more than ever necessary to raise its standard and to safeguard its content from even the suspicion of being dominated by self-interests.—Am. J. Pharm., Phila., 1909, v. 87, p. 571.

Hunt, Reid, asserts that until pharmacopœias of the world assume a more international character, corresponding to the present international character of medicine, they will fail more and more to represent truly the needs of the medical profession, and there is probably no phase of pharmacopœial revision in which this profession is more vitally interested than this.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, pp. 16-17.

Sollmann, Torald, asserts that the Pharmacopœia is one of the strongest potential factors in advancing scientific therapeutics, which means simple and accurate prescribing. He thinks that the existing differences of opinion as to the details of the radical changes which the medical profession believes to be necessary is a healthy symptom, and that these questions should be discussed thoroughly.—J. Am. M. Ass., 1909, v. 53, p. 1544.

Beringer, George M., points out that while the Pharmacopœia reflects the progress of medicine and of medical sciences along certain lines, its scope precludes the recognition of advances in other directions.—Am. J. Pharm., Phila., 1909, v. 81, p. 391.

Wilbert, M. I., believes that the real cause for the present day lack of interest in the Pharmacopœia on the part of medical practitioners is to be found in the established dictum that pharmacopœial recognition does not necessarily mean excellence or usefulness, but simple use or reputed use.—*Ibid.*, p. 567.

Kremers, Edward, in a book review of the Digest of Comments on the Pharmacopœia of the United States, points out that, for decades, a commentary written by members of the revision committee was the principle guide of medical and pharmaceutical practitioners of this country, and the Pharmacopœia itself was a treatise of the second order that paled almost into insignificance.—*Midl. Drug.* 1909, v. 43, p. 254.

An editorial (Meyer Bros. Drug., St. Louis, 1909, v. 30, p. 165) asserts that few physicians ever saw a pharmacopœia while many are acquainted with the dispensaries. It has been found on various occasions that physicians, otherwise well posted, took it for granted that a dispensary is the pharmacopœia. This is particularly true of the United States Dispensary, which is somewhat similar in name.

Diehl, C. Lewis, points out that the Pharmacopœia of the United States of America is a book of standards, defining the character, properties, and composition of the medicaments employed by physicians in their practice and believed to possess pharmacological properties that entitle them to this recognition.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 266.

Hunt, Reid, points out that the Pharmacopœia is assuming the character of a great commercial standard and a textbook of analytical chemistry combined, and has already expanded into a work very different from what its founders anticipated.—*Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, p. 9.

Gane and Webster express the belief that the Pharmacopœia in all probability will ultimately become a standard more for household remedies than for articles prescribed by physicians.—*Drug Topics*, New York, 1909, v. 24, p. 341.

Remington, Joseph P., points out that while in favor of having the medical profession dictate in the matter of selecting medicines which should be added to or deleted from it, it must be remembered that the present Pharmacopœia is a book of standards, and by far the largest part of the work has properly been given to the tests required to establish the identity and purity of the various substances used directly or indirectly in the treatment of diseases.—*Am. J. Pharm.*, Phila., 1909, v. 81, p. 575.

Sadtler, Samuel P., points out that while the Pharmacopœia is primarily addressed to the pharmaceutical and medical professions, the passage of the food and drugs act by the Congress of the United

States has made it of prime importance to public analysts, food and drug chemists, and to chemical manufacturers.—Proc. VIIth Internat. Congress App. Chem.—Sec. VIIIb.—Pharmacy, 1909, London, 1910, p. 117.

Murray, B. L., suggests that the forthcoming Pharmacopœia be practical. He asserts that in times past our Pharmacopœia was little known and was regarded as of relatively little importance because it was not practical.—Am. Druggist, N. Y., 1909, v. 55, p. 308.

An abstract, in commenting on the compliance of manufacturers with the Pharmacopœia of the United States, says that the manufacturer may know it all and more too. It is not what he knows that counts, it is what he does that makes trouble.—N. A. R. D. Notes, 1909, v. 8, p. 1045.

An editorial (Southern Pharm. J., 1908-09, v. 1, p. 437), discussing the uses of the U. S. P. and N. F., asserts that the druggist should familiarize himself with the preparations of the above-named standards if he would aid in the progress of pharmacy.

Potts, Thomas H., finds that the greatest difficulty in the present propaganda movement exists with pharmacists themselves. A great many do not even possess the modern editions of the U. S. P. and the N. F., and are not in a position to fill prescriptions when offered.—Proc. Pennsylvania Pharm. Ass., 1909, p. 47.

Kaczoroski, A. O., claims that the only practical way of introducing the U. S. P. and N. F. to the medical profession is by the combined efforts of the A. M. A. and the A. Ph. A.—Proc. Louisiana Pharm. Ass., 1909, p. 47.

Jacobi, Abraham, asserts that medical students are not taught prescription writing. That is why they fall into the hands of manufacturers' agents. Physicians are guided by agents of the manufacturers, and they don't know what to do with the Pharmacopœia, and don't keep it on their shelves. He concludes: "If the American Medical Association wants to do a very good thing, it is to be a little more independent of outside powers."—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, pp. 233-234.

#### 10. ADDITIONS AND DELETIONS.

Fussell, M. H., asserts that the Pharmacopœia contains practically everything that is known to be surely useful at the time of publication of the book. It therefore should have expunged from its pages drugs or their preparations that have become obsolete. He calls attention to 31 of the crude drugs which he believes could be disposed of without crippling the Pharmacopœia.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, pp. 203-205.

Capps, Pratt, McCrae, and Halsey preface a list, which they recommend be deleted from the Pharmacopœia, with the statement that

it may be thought well to retain some of these in the National Formulary for various reasons. The majority do not seem to deserve a place and should be dropped for want of sufficient recognition and use. Some are used in certain localities, but this should not justify their retention.—J. Am. M. Ass., 1909, v. 53, p. 792.

An editorial (*Ibid.*, p. 1491) states that the methods pursued, concerning admissions, by the last committee on revision are not such as to appeal to the medical profession; the committee was all too willing to yield to what was represented to be the wishes of physicians, and evidently took little trouble to inquire how extensive or how well founded these wishes were.

Hunt, Reid, points out that different sections of the American Medical Association and other medical organizations are selecting from New and Nonofficial Remedies those articles which the members believe to be of most value and which should be considered for inclusion in the Pharmacopœia.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 13.

An editorial (Bull. Am. Pharm. Ass., 1909, v. 4, p. 452) expresses the belief that the admissions to or deletions from the Pharmacopœia should not be decided on purely scientific grounds, since there have as yet been very few drugs whose action is known at all distinctly or definitely.

Wilbert, M. I., thinks that the principles that are to serve as a guide in the determination of additions and deletions should be embodied in readily understood language in the general principles adopted by the Pharmacopœial Revision Convention.—Midl. Drug., 1909, v. 43, p. 684.

Solis-Cohen, Solomon, thinks that as to routine mixtures in general, their place is elsewhere than in the Pharmacopœia. Therapeutically they are not to be commended, but as a demand for them exists, a book of standards is necessary. This he would make the National Formulary.—Boston M. & S. J., 1909, v. 160, p. 52.

An editorial (Pacific Pharmacist, 1909-1910, v. 3, p. 325) points out that there is little difference of opinion as to the use and therapeutic value of the more powerful agents, that is, those agents which have been accorded a definite place in the practice of medicine, and there can be little doubt that fully 50 per cent of the less important articles could be excluded from the U. S. P. without causing any harm to the physical well-being of the race.

Oldberg, Oscar, thinks it is useless to include in the Pharmacopœia any substances concerning which no reliable definitions, descriptions, tests, or other information can be furnished.—*Ibid.*, p. 329.

Wooten, Thomas V., advocates that drugs of doubtful value be dropped and thus greater space accorded to the more important drugs. He thinks that this would permit of the description of the drug in powdered form.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 30.

Puckner, W. A., believes that the Pharmacopœia of the United States should contain only simples, but it should not contain simples of unknown or of little value. He points out that if a drug is given a place in the Pharmacopœia it at once establishes a reputation for that drug to which it may not be entitled.—*Ibid.*, p. 28.

Bruder, Otto E. F., in commenting on the changes proposed by the several committees of the sections of the American Medical Association, expresses the belief that physicians should dictate the contents of the Pharmacopœia and that nothing should be embodied therein that is not indorsed by capable medical men.—N. A. R. D. Notes, 1909, v. 9, pp. 281–282.

Fantus, Bernard, expresses himself as being strongly in favor of diminishing the number of pharmacopœial articles, and would heartily indorse the deletion of formulas patterned after nostrums.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 28.

Hynson, Henry P., presents a discussion on the more radical revision of the Pharmacopœia, in which he recommends the deletion from the Pharmacopœia and the N. F. of all formulas for complex preparations, and suggests the publication of a receipt book for the preservation of such formulas as may be useful for pharmacists.—Drug Topics, New York, 1909, v. 24, pp. 195–196.

Goetting, E. C., thinks there is no excuse for continuing, either in the National Formulary or in the Pharmacopœia of the United States, imitations of proprietary remedies that at best are ephemeral and are of interest only so long as they are being actively advertised.—D.-A. Apoth. Ztg., N. Y., 1909–10, v. 30, p. 30.

Jacobi, Abraham, in deploring the fact that the Pharmacopœia is misleading to physicians because it includes useless and dangerous drugs, says: "We are a credulous people, and the pharmacists should know it. I do not know to what extent the Pharmacopœia is fortified by law, but there is one way out, that is, the American Medical Association should make its own pharmacopœia and make a pharmacopœia to suit itself. If physicians want the aid of a chemist or druggist, let them secure it, but there should be no mixed commission in which there may be influences. Among the better part of the medical profession there is a sufficient number of men to select from."—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 233.

Conner, Lewis A., thinks that such drugs as aspirin, adrenalin, argyrol, heroin, ichthyol, and veronal, should not be abandoned merely because they are patented. If they have proved their usefulness and continue to be used, they should have a place in the Pharmacopœia.—J. Am. M. Ass. 1909, v. 53, p. 792.

The committee of the Massachusetts Medical Society, appointed to consider the revision of the United States Pharmacopœia, has sent

out circulars requesting members to indicate their preferences regarding additions and deletions.—*Boston M. & S. J.* 1909, v. 161, p. 792.

The A. Ph. A. committee on U. S. P. suggests a number of additions to the *Pharmacopœia*.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 798–799.

An abstract (*Midland Drug.*) reproduces a list of animal drugs of the *Homœopathic Pharmacopœia* compiled by J. H. Beal.—*Am. Druggist*, N. Y., v. 54, p. 164.

McWalter, J. C., enumerates in the *Medical Press* (No. 3, 634, p. 719) a few of the drugs which he considers ought to find a place in the coming *British Pharmacopœia*.—*Chem. & Drug. Lond.*, 1909, v. 74, p. 20.

#### 11. PURITY AND STRENGTH.

Remington, Joseph P., asserts that the object of the purity rubric is to furnish medicines at a reasonable cost. He further asserts that if the process of purification was carried further the price would be advanced very much.—*Am. J. Pharm.*, Phila., 1909, v. 81, p. 558.

An editorial note (*Am. Druggist*, N. Y., 1909, v. 54, p. 228) points out that pharmaceutical chemists should be made directly responsible for official statements regarding the origin, standards and purity and methods of examination of the articles admitted to the *Pharmacopœia*.

Hunt, Reid, believes that there are certain chemical problems in the solution of which medical opinion should prevail. Thus, many of the problems in regard to chloroform and ether, and the requirements as to the optical activity of a few drugs, such as scopolamine, are questions which chemists and pharmacists are not competent to decide.—*Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, p. 10.

Coblentz, Virgil, points out that the standards for medicinal chemicals must be on the basis of medicinal rather than chemical purity, and that this idea has already been carried out in the present *Pharmacopœia*.—*Merck's Rep.*, 1909, v. 18, p. 336; also *Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 493.

Kraemer, Henry, states with reference to the purity rubric that there are two points of view. To the scientist and experimenter in both plant and animal industry the presence of even a small percentage of impurities is an important consideration. He asserts that the traces of substances, which were formerly supposed to have little or no influence, are found to have a marked effect on the organism.—*Am. J. Pharm.*, Phila., 1909, v. 81, p. 558.

Sadtler, Samuel P., states that the standards of purity for many of the organic compounds have been set high, and it is not in all cases settled as to whether the manufacturers and importers can maintain

these standards.—Proc. VIIth Internat. Congress App. Chem.—Sec. VIIIb.—Pharmacy, 1909, London, 1910, p. 118.

Kahn, Joseph, asserts that the pharmacopœial requirements, which are supposed to be limited to substances used solely for medicinal purposes, are not strictly adhered to. Investigation has shown that in many instances, in the absence of explicit orders, the retailer is supplied with this class of goods (sold "for technical use" or "for commercial use"), the reason being, as asserted by a good many, that the pharmacopœial requirements are extremely rigid and would necessitate great expense.—Proc. New York Pharm. Ass., 1909, p. 262.

An editorial (Meyer Bros. Drug., St. Louis, 1909, v. 30, p. 267) calls attention to the importance of the purity rubric described on page xxxviii of the U. S. P. VIII, and asserts that this is a portion of the Pharmacopœia not as frequently studied by pharmacists as it should be.

The report of the committee on drug market as presented contains a compilation of analytical results showing the degree of adulteration practiced in connection with many of the official products.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 721-739.

Murray, B. L., discusses the purity rubric of the United States Pharmacopœia and points out that the standards must be possible and authentic, and should be practical.—Merck's Rep., 1909, v. 18, pp. 315-316.

Rosengarten, George D., thinks that there is still plenty of room for revision. For example, the increased cost of manufacture, incurred by the elimination of small amounts of inert and not medicinally objectionable impurities, is not commercially practicable.—Merck's Rep., 1909, v. 18, p. 336.

Havenhill, L. D., thinks that in all cases where there is a purity rubric, quantitative tests should be appended.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 799.

Schneider, Albert, points out that the U. S. P. standards require revision along the lines of simplification of methods and a moderation (lowering) of some quality and purity requirements.—*Ibid.*, p. 741.

The board of control of the N. W. D. A. offer, in the form of a resolution, the recommendation by the committee on standards and tests of the U. S. P. and N. F. that standards of chemicals, while excluding or reducing to a minimum impurities considered harmful, shall permit a small given percentage of a harmless constituent where its elimination would add unduly to the cost.—Proc. N. W. D. A., 1909, p. 295. See also pp. 161 and 164.

Plaut, Albert, commenting on the need for permitting a small percentage of a harmless constituent in chemicals, asserts that this proposition is the principle enunciated by the Geneva Congress, and will

have the support of H. W. Wiley, also of the committee on tests of the American Chemical Society, and it will certainly serve to make unconscious infractions of the food and drugs act very difficult hereafter.—*Ibid.*, p. 298.

Remington, Joseph P., commenting on the Richmond meeting of the N. W. D. A., asserts that he was especially interested in the way the purity rubric was received, as it was the subject of much discussion by the members of the revision committee.—*Am. J. Pharm.*, Phila., 1909, v. 81, p. 557.

Grier, Jas., in discussing the coming edition of the Ph. Brit., thinks that, in regard to the quantitative tests, it would be better to adopt the purity standard introduced into the last edition of the U. S. P., and simply state that a given chemical should be required to contain a certain per cent of pure substance.—*Pharm. J.*, Lond., 1909, v. 29 (83), p. 639.

Squire and Caines call attention to the chief chemical standards in the Ph. Brit., U. S. P., Ph. Fr., and the Ph. Germ., and comment upon some of the conditions which are observed in preparations of first-class importance.—*Chem. & Drug. Lond.*, 1909, v. 74, p. 877.

An editorial (*National Druggist*, 1909, p. 306) points out that the excessive demands of the purity rubric of the Ph. Fr. V have brought about a peculiar condition—that the pharmacist must either manage to get along without the drugs specified, which is hardly conceivable, or he must take the chance of a prosecution for “adulteration,” even if his stock is the best that can be procured.

Merck, E. (Darmstadt), calls attention to the lack of specific detail in the tests of the Ph. Fr. V.—*Bull. sc. pharmacol. Par.*, 1909, v. 16, p. 543.

An editorial (*Am. Druggist*, N. Y., 1909, v. 55, p. 301) calls attention to the standards for certain drugs and chemicals discussed by the International White Cross Congress which met in Paris in October, 1909.

For details of discussions and requirements see *Chem. & Drug. Lond.* v. 75; *Bull. Soc. roy. d. pharm. Brux.* v. 53; and *Bull. sc. pharmacol. Par.*, v. 16.

## 12. ATOMIC WEIGHTS.

The report of the international committee on atomic weights, with the international atomic weight table for 1909, is reprinted.—*J. Am. Chem. Soc.*, 1909, v. 31, pp. 1–6. See also *Ber. d. deutsch. chem. Gesellsch.*, Berl., 1909, v. 42, pp. 11–17.

Clarke, F. W., presents the sixteenth annual report of the committee on atomic weights, including determinations published during 1908.—*J. Am. Chem. Soc.*, 1909, v. 31, pp. 289–297. See also *Chem. News*, Lond., 1909, v. 100, pp. 25–28.



Köthner and Tiede review the work published during 1908 on the determination of atomic weights.—*Fortschr. d. Chem.*, 1909, v. 1, pp. 1-7.

Richards, Th. W., presents a report of experimental observations on atomic weights from 1887-1908; German edition by J. Koppel, 890 pages, 1909, Leopold Voss, Hamburg and Leipzig, 35 marks.—*Phys.-Chem. Centralbl.*, 1908-9, v. 6, p. 548.

Wilbert, M. I., points out that the Pharmacopœia of the United States is unique in some important respects, and is the only modern Pharmacopœia the chemical notation of which is based on the now obsolete atomic weight standard of  $H=1$ .—*Midl. Drug.*, 1909, v. 43, p. 684.

Moir, James, outlines a method of harmonizing the atomic weights.—*J. Chem. Soc., Lond.*, 1909, v. 95, pp. 1752-1755.

Egerton, Alfred Charles Glyn, reports a study of the question, Why are the atomic weights of the first fifteen elements, expressed with reference to hydrogen as a unit, slightly different from whole numbers, and why are they almost exactly whole numbers when expressed with reference to oxygen as 16?—*Ibid.*, pp. 238-242. See also *Chem. News, Lond.*, 1909 v. 99, p. 91.

Hinrichs, G. D., discusses the constant and residual error in the laboratory work for the determination of true atomic weights.—*Monit. Scientif.*, 1909, v. 70, pp. 6-13. See also pp. 383 and 731; and *Comp. rend. Acad. d. sc., Par.*, 1909, v. 148 and 149, for additional contributions by the same author.

Dubreuil, Louis, discusses the true values of atomic weights, and the atomic weights of Stas.—*Bull. Soc. chim., Par.*, 1909, v. 5, pp. 260-ff.

Loring, F. H., discusses the possibility of mathematically harmonizing the elements.—*Chem. News, Lond.*, 1909, v. 99, pp. 241-242.

Guye, Philippe A., reports experiments in the determination of atomic weights and describes and illustrates the apparatus used.—*Ztschr. f. anorg. Chem.*, 1909, v. 64, pp. 1-28.

Guye and Zachariades discuss the vacuum correction of weighings in the determination of atomic weights.—*Compt. rend. Acad. d. sc., Par.*, 1909, v. 149, pp. 593-594.

Leduc, A., discusses the relation between molecular volume, density, and atomic weight.—*Ibid.*, pp. 548-550.

Hinrichsen and Kindscher review the work done in connection with the determination of atomic weights during 1909, discuss a number of the papers that have been published, and present the international atomic weight table for 1910.—*Fortschr. d. Chem.*, 1909, v. 1, pp. 355-359.

The report of the International Atomic Weight Commission for 1909 is reprinted; also the international atomic weight table for 1910.—*Ztschr. f. anorg. Chem.*, 1909-10, v. 65, pp. 113-116. See also

Chem. Ztg., Cöthen, 1909, v. 33, p. 1181; and J. Chem. Soc., Lond., 1909, v. 95, pp. 2216-2219.

*International Atomic Weights, 1910.*

(J. Chem. Soc., Lond., 1909, v. 95, p. 2219.)

|            |    | O=16.  |                          |    | O=16.  |
|------------|----|--------|--------------------------|----|--------|
| Aluminium  | Al | 27.1   | Molybdenum               | Mo | 96.0   |
| Antimony   | Sb | 120.2  | Neodymium                | Nd | 144.3  |
| Argon      | A  | 39.9   | Neon                     | Ne | 20.0   |
| Arsenic    | As | 74.96  | Nickel                   | Ni | 58.68  |
| Barium     | Ba | 137.37 | Nitrogen                 | N  | 14.01  |
| Bismuth    | Bi | 208.0  | Osmium                   | Os | 190.9  |
| Boron      | B  | 11.0   | Oxygen                   | O  | 16.00  |
| Bromine    | Br | 79.92  | Palladium                | Pd | 106.7  |
| Cadmium    | Cd | 112.40 | Phosphorus               | P  | 31.0   |
| Caesium    | Cs | 132.81 | Platinum                 | Pt | 195.0  |
| Calcium    | Ca | 40.09  | Potassium                | K  | 39.10  |
| Carbon     | C  | 12.00  | Praseodymium             | Pr | 140.6  |
| Carbon     | Ce | 140.25 | Radium                   | Ra | 226.4  |
| Chlorine   | Cl | 35.46  | Rhodium                  | Rh | 102.9  |
| Chromium   | Cr | 52.0   | Rubidium                 | Rb | 85.45  |
| Cobalt     | Co | 58.97  | Ruthenium                | Ru | 101.7  |
| Columbium  | Cb | 93.5   | Samarium                 | Sa | 150.4  |
| Copper     | Cu | 63.57  | Scandium                 | Sc | 44.1   |
| Dysprosium | Dy | 162.5  | Selenium                 | Se | 79.2   |
| Erbium     | Er | 167.4  | Silicon                  | Si | 28.3   |
| Europium   | Eu | 152.0  | Silver                   | Ag | 107.88 |
| Fluorine   | F  | 19.0   | Sodium                   | Na | 23.00  |
| Gadolinium | Gd | 157.3  | Strontium                | Sr | 87.62  |
| Gallium    | Ga | 69.9   | Sulphur                  | S  | 32.07  |
| Germanium  | Ge | 72.5   | Tantalum                 | Ta | 181.0  |
| Gincium    | Gl | 9.1    | Tellurium                | Te | 127.5  |
| Gold       | Au | 197.2  | Terbium                  | Tb | 159.2  |
| Helium     | He | 4.0    | Thallium                 | Tl | 204.0  |
| Hydrogen   | H  | 1.008  | Thorium                  | Th | 232.42 |
| Indium     | In | 114.8  | Thulium                  | Tm | 168.5  |
| Iodine     | I  | 126.92 | Tin                      | Sn | 119.0  |
| Iridium    | Ir | 193.1  | Titanium                 | Ti | 48.1   |
| Iron       | Fe | 55.85  | Tungsten                 | W  | 184.0  |
| Krypton    | Kr | 83.0   | Uranium                  | U  | 238.5  |
| Lanthanum  | La | 139.0  | Vanadium                 | V  | 51.2   |
| Lead       | Pb | 207.10 | Xenon                    | Xe | 130.7  |
| Lithium    | Li | 7.00   | Ytterbium (Neoytterbium) | Yb | 172.0  |
| Lutetium   | Lu | 174.0  | Yttrium                  | Y  | 89.0   |
| Magnesium  | Mg | 24.32  | Zinc                     | Zn | 65.37  |
| Manganese  | Mn | 54.93  | Zirconium                | Zr | 90.6   |
| Mercury    | Hg | 200.0  |                          |    |        |

*Multiples of some atomic and molecular weights.*

Based on the International Atomic Weight Table for 1910 (O=16).

|                                | 1      | 2      | 3      | 4      | 5       | 6      | 7      | 8       | 9       |                                  |
|--------------------------------|--------|--------|--------|--------|---------|--------|--------|---------|---------|----------------------------------|
| Al                             | 27.10  | 54.20  | 81.30  | 108.40 | 135.50  | 162.6  | 189.7  | 216.8   | 243.9   | Al.                              |
| Al <sub>2</sub> O <sub>3</sub> | 102.2  | 204.4  | 306.6  | 408.8  | 511.0   | 613.2  | 715.4  | 817.6   | 919.8   | Al <sub>2</sub> O <sub>3</sub> . |
| Ag                             | 107.88 | 215.76 | 323.64 | 431.52 | 539.40  | 647.1  | 755.2  | 863.0   | 970.9   | Ag.                              |
| Ag <sub>2</sub> O              | 221.76 | 443.52 | 665.28 | 887.04 | 1108.80 | 1330.6 | 1552.3 | 1774.1  | 1995.8  | Ag <sub>2</sub> O.               |
| Br                             | 79.92  | 159.84 | 239.76 | 319.68 | 399.60  | 479.5  | 559.4  | 639.4   | 719.3   | Br.                              |
| Ca                             | 40.09  | 80.18  | 120.27 | 160.36 | 200.45  | 240.55 | 280.6  | 320.7   | 360.8   | Ca.                              |
| CaO                            | 56.09  | 112.18 | 168.27 | 224.36 | 280.45  | 336.5  | 392.6  | 448.7   | 504.8   | CaO.                             |
| C                              | 12.00  | 24.00  | 36.00  | 48.00  | 60.00   | 72.0   | 84.0   | 96.0    | 108.0   | C.                               |
| CO                             | 28.0   | 56.0   | 84.0   | 112.0  | 140.0   | 168.0  | 196.0  | 224.0   | 252.0   | CO.                              |
| CO <sub>2</sub>                | 44.00  | 88.00  | 132.00 | 176.00 | 220.00  | 264.0  | 308.0  | 352.0   | 396.0   | CO <sub>2</sub> .                |
| O <sub>2</sub>                 | 32.00  | 64.00  | 96.00  | 128.00 | 160.00  | 192.0  | 224.0  | 256.0   | 288.0   | O <sub>2</sub> .                 |
| CO <sub>2</sub>                | 44.00  | 88.00  | 132.00 | 176.00 | 220.00  | 264.0  | 308.0  | 352.0   | 396.0   | CO <sub>2</sub> .                |
| N                              | 14.01  | 28.02  | 42.03  | 56.04  | 70.05   | 84.06  | 98.07  | 112.08  | 126.09  | N.                               |
| Cl                             | 35.46  | 70.92  | 106.38 | 141.84 | 177.30  | 212.76 | 248.22 | 283.68  | 319.14  | Cl.                              |
| H                              | 1.008  | 2.016  | 3.024  | 4.032  | 5.040   | 6.048  | 7.056  | 8.064   | 9.072   | H.                               |
| OH                             | 17.01  | 34.02  | 51.03  | 68.04  | 85.05   | 102.06 | 119.07 | 136.08  | 153.09  | OH.                              |
| H <sub>2</sub> O               | 18.02  | 36.04  | 54.06  | 72.08  | 90.10   | 108.12 | 126.14 | 144.16  | 162.18  | H <sub>2</sub> O.                |
| L                              | 126.92 | 253.84 | 380.76 | 507.68 | 634.60  | 761.52 | 888.44 | 1015.36 | 1142.28 | L.                               |
| K                              | 39.10  | 78.20  | 117.30 | 156.40 | 195.50  | 234.6  | 273.7  | 312.8   | 351.9   | K.                               |
| K <sub>2</sub> O               | 94.2   | 188.4  | 282.6  | 376.8  | 471.0   | 565.2  | 659.4  | 753.6   | 847.8   | K <sub>2</sub> O.                |
| Mg                             | 24.32  | 48.64  | 72.96  | 97.28  | 121.60  | 145.92 | 170.24 | 194.56  | 218.88  | Mg.                              |
| MgO                            | 40.32  | 80.64  | 120.96 | 161.28 | 201.60  | 241.92 | 282.24 | 322.56  | 362.88  | MgO.                             |

*Multiples of some atomic and molecular weights—Continued.*

|                        | 1      | 2      |        | 4      | 5      | 6     | 7     | 8      | 9      |                    |
|------------------------|--------|--------|--------|--------|--------|-------|-------|--------|--------|--------------------|
| N.....                 | 14.01  | 28.02  | 43.03  | 56.04  | 70.05  | 84.1  | 98.1  | 112.1  | 126.1  | N.                 |
| NH <sub>3</sub> .....  | 16.02  | 32.05  | 48.06  | 64.10  | 80.13  | 96.2  | 112.2 | 128.2  | 144.2  | NH <sub>3</sub> .  |
| NH <sub>4</sub> .....  | 17.03  | 34.07  | 51.11  | 68.14  | 85.17  | 102.2 | 119.2 | 136.3  | 153.3  | NH <sub>4</sub> .  |
| NH <sub>4</sub> .....  | 18.04  | 36.08  | 54.13  | 72.17  | 90.21  | 108.3 | 126.3 | 144.3  | 162.4  | NH <sub>4</sub> .  |
| NO.....                | 30.01  | 60.02  | 90.03  | 120.04 | 150.05 | 180.1 | 210.1 | 240.1  | 270.1  | NO.                |
| NO <sub>2</sub> .....  | 46.01  | 92.02  | 138.03 | 184.04 | 230.05 | 276.1 | 322.1 | 368.1  | 414.1  | NO <sub>2</sub> .  |
| NO <sub>2</sub> .....  | 62.01  | 124.02 | 186.03 | 248.04 | 310.05 | 372.1 | 434.1 | 496.1  | 558.1  | NO <sub>2</sub> .  |
| N <sub>2</sub> O.....  | 108.02 | 216.04 | 324.06 | 432.08 | 540.10 | 648.1 | 756.1 | 864.2  | 972.2  | N <sub>2</sub> O.  |
| Na.....                | 23.00  | 46.00  | 69.00  | 92.00  | 115.00 | 138.0 | 161.0 | 184.0  | 207.0  | Na.                |
| Na <sub>2</sub> O..... | 62.00  | 124.00 | 186.00 | 248.00 | 310.00 | 372.0 | 434.0 | 496.0  | 558.0  | Na <sub>2</sub> O. |
| O.....                 | 16.00  | 32.00  | 48.00  | 64.00  | 80.00  | 96.0  | 112.0 | 128.0  | 144.0  | O.                 |
| PO.....                | 55.00  | 110.00 | 165.00 | 220.00 | 275.00 | 330.0 | 385.0 | 440.0  | 495.0  | PO.                |
| P <sub>2</sub> O.....  | 142.00 | 284.00 | 426.00 | 568.00 | 710.00 | 852.0 | 994.0 | 1136.0 | 1278.0 | P <sub>2</sub> O.  |
| S.....                 | 32.07  | 64.14  | 96.21  | 128.28 | 160.35 | 192.4 | 224.5 | 256.6  | 288.6  | S.                 |
| SO <sub>2</sub> .....  | 80.07  | 160.14 | 240.21 | 320.28 | 400.35 | 480.4 | 560.5 | 640.6  | 720.6  | SO <sub>2</sub> .  |
| SO <sub>4</sub> .....  | 96.07  | 192.14 | 288.21 | 384.28 | 480.35 | 576.4 | 672.5 | 768.6  | 864.6  | SO <sub>4</sub> .  |

## 13. CHEMICAL FORMULAS.

Sadtler, Samuel P., asserts that the adoption of a limited number of structural formulas and the use of many rational as distinguished from empirical formulas in the definitions of organic compounds has given a scientific exactness to the descriptive matter of the Pharmacopœia of the United States.—Proc. VIIth Internat. Congress App. Chem., Sec. VIIIb, Pharmacy, 1909, London, 1910, p. 117. Also Pharm. J., Lond., 1909, v. 82, p. 769.

## 3. NONPHARMACOPŒIAL STANDARDS.

## 1. NATIONAL FORMULARY.

Diehl, C. Lewis, discusses the history and describes the evolution of the National Formulary.—Bull. Am. Pharm. Ass., 1909, v. 4, pp. 14-18, 44-47.

Hynson, Henry P., discusses the National Formulary, its genesis, character, and utility, and says that just and helpful criticism from all concerned is sincerely requested, and, if praise and encouragement may be worthily bestowed, such will be most gratefully received.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, pp. 226-232.

Stewart, F. E., calls attention to the origin and the evolution of the National Formulary and expresses the belief that a National Formulary propaganda to be successful must have as its basis a book to which pharmacists can point with pride. Such a book should contain no preparations for which pharmacists can not accept responsibility as experts.—Proc. Pennsylvania Pharm. Ass., 1909, p. 215. Also Pharm. Era, 1909, v. 42, 176.

Beringer, George M., points out that the National Formulary was created to "obtain uniformity in dispensing and to supply authoritative standards for remedies frequently prescribed by physicians or demanded by the public."—Am. J. Pharm., Phila., 1909, v. 81, p. 331.

Wilbert, M. I., asserts that no problem now before American pharmacists is of more immediate importance, or more far-reaching in its ultimate possibilities, than is the perfecting of the national standards.—*Southern Pharm. J.*, 1908-9, v. 1, p. 496.

Wiley, H. W., thinks that in connection with the National Formulary we should insist on "simplicity" as to formula, "propriety" as to name, and "conformity" with the spirit as well as the letter of the law.—*Pharm. Era*, 1909, v. 42, p. 638.

Kebler, L. F., expresses the belief that the National Formulary should not be a hodge-podge of complex pharmaceuticals.—*Ibid.*, p. 638.

Hynson, Henry P., in discussing the National Formulary, asserts that the book undoubtedly has served a good purpose and has developed and improved in all regards as rapidly as might be expected. Certainly its progress toward perfection has been much more rapid than was that made by the Pharmacopœia in its earlier days.—*Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, p. 230.

The resolution adopted by the Philadelphia College of Pharmacy, requesting that comments on the National Formulary be included in the Digest of Comments published by the Public Health and Marine-Hospital Service, is reproduced.—*Am. J. Pharm., Phila.*, 1909, v. 81, p. 95.

An editorial (*Meyer Bros. Drug, St. Louis*, 1909, v. 30, p. 99) comments on the revision of the National Formulary which is now under way and asserts that never in the history of the U. S. P. have the retail druggists manifested so much interest in the revision of that standard as they are now showing in the National Formulary. Perhaps this is due in a measure to the fact that the Pharmacopœia has never been the actual working manual of the retail druggist in the manner which is true of the National Formulary.

Wilbert, M. I., expresses the belief that the interest taken in the revision of the National Formulary is indicative of real progress in the sciences relating to pharmacy, and that the forthcoming edition of the National Formulary will no doubt be a really valuable book of reference for everyday use in the pharmacy.—*Am. J. Pharm., Phila.*, 1909, v. 81, p. 290.

Forbes, J., Winchell, in the report of the committee on unofficial formulas, says: "It has been too common a custom for the revisers of the Pharmacopœia to seize on possibilities as if they were accomplished results, and yank both formulas and processes into officialdom while they were yet green; and to make matters still worse, the U. S. Government has made the natural purgatory of such things, the National Formulary, a standard work, in place of a probationary record of things which possibly might be of real value."—*Proc. Ohio Pharm. Ass.*, 1909, p. 105.

Main, Thos. F., Chairman, reports that it would appear that manufacturing pharmacists have paid little attention to the Formulary, but continue to sell elixirs, sirups, and miscellaneous preparations (not named in the United States Pharmacopœia) made according to their own special formulas, for which each house has created a certain demand.—Proc. N. W. D. A., 1909, pp. 157-158.

Kline, M. N., thinks that the National Formulary was hastily thrown together and certainly needs revision. He believes that this revision should be conducted in some way by the representatives of both the medical profession and of the pharmaceutical profession.—*Ibid.*, p. 166.

An editorial (Critic & Guide, 1909, v. 12, p. 228) asserts that the National Formulary will need a good deal of overhauling, a good deal of elimination and emendation, a whole lot of correction and improvement, before it will be a safe guide for the physician to follow, a reliable repository to take formulas from. It was gotten out in too much of a hurry, and the desire to have it present substitute formulas for well-known proprietaries was kept too prominently in view in this edition.

Diehl, C. Lewis, points out that the National Formulary, as its name implies, is primarily a book of formulas, and is intended to supply formulas for preparations, which, irrespective of any generally recognized pharmacological value, are prescribed with sufficient frequency to make it desirable that they be dispensed uniformly of the same composition.—Proc. Pennsylvania Pharm. Ass., 1909, p. 266.

Lowe, Clement B., in commenting on criticisms of the National Formulary, says in part: "We all recognized that it was unfortunate that it was made official when it was, and yet probably it has its good side. It is going to lead to a revision of the National Formulary much more rapidly than it would if it had not been made official, and probably when it is revised it will be an acceptable book. We want a building up, and not a taking down. Too much criticism does no good."—*Ibid.*, p. 228.

Flemer, Lewis, thinks that the National Formulary should contain formulas for all preparations for which there is a reasonable demand either by the medical profession or by the public, and the nomenclature and the index should be most comprehensive, giving all the synonyms by which the preparations are now and have been known.—Western Druggist, Chicago, 1909, v. 31, p. 339.

Beringer, George M., presents some of the improvements proposed in the revision of the N. F. In the choice of deletions and additions he thinks the committee should have the assistance and cooperation of the medical profession and of the pharmacists throughout the country.—Proc. New Jersey Pharm. Ass., 1909, pp. 112-114. Also Apothecary, 1909, v. 21, August, p. 19.

Wilbert, M. I., discusses the revision of the National Formulary, and calls attention to some of the changes that have been proposed by the committee on National Formulary and agreed to by members of the American Pharmaceutical Association.—*Southern Pharm. J.*, 1908-9, v. 1, pp. 496-497.

Hilton, S. L., suggests that the next revision of the National Formulary be made jointly by the American Pharmaceutical Association and the American Medical Association.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 120.

Beringer, George M., makes a plea for cooperation on the part of the American Medical Association in the revision of the National Formulary, so as to make it a true standard American work, satisfactory to both medicine and pharmacy.—*Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, p. 21. Also *Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 219.

Solis-Cohen, S., regards the admission of physicians to the revision of the National Formulary as very necessary. The N. F. should include only those preparations which have a distinct place in practical therapeutics and which the intelligent physician can prescribe.—*Boston M. & S. J.*, 1909, v. 160, p. 624.

LaWall, Charles H., states that while the actual work of revision must remain in the hands of the pharmacists, if the relative responsibility of both professions is properly realized and cooperation made easy by frequent conferences and discussions, the new edition of the National Formulary will be a work in which both medical and pharmaceutical professions may feel confidence and pride.—*Ibid.*, p. 623.

Flemer, Lewis, thinks that since the National Formulary has become an official work and, together with the U. S. Pharmacopœia, sets the legal standards, it is the opinion of many that the best results would be obtained if the National Formulary committee and the revision committee of the U. S. P. would work together or through a joint committee.—*Western Druggist*, Chicago, 1909, v. 31, p. 338.

Oldberg, Oscar, thinks that if the National Formulary retains its authority as a national standard the sole control of it will pass out of the hands of the American Pharmaceutical Association. It will then perhaps be considered as a supplement to the Pharmacopœia, and in that case will no longer contain such inspirations as Warburg's tincture, Plummer's pills, etc.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 430.

Hallberg, C. S. N., points out that, while physicians are interested in the Pharmacopœia as a legal standard, they are equally interested in the National Formulary. He further points out that it is because of the fortunate fact that the National Formulary was incorporated in the food and drugs act that we are able to offer to physicians such

a wide scope of medicine to-day, much wider than we could do if only the Pharmacopœia was recognized.—*Ibid.*, p. 422.

Eliel, Leo, thinks that the National Formulary should be a book for the pharmacist and not open to the same criticism that has been made of the Pharmacopœia; that it is a book for the manufacturer and not the pharmacist.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 435.

Bodemann, W., thinks that a good way to start National Formulary propaganda is by making the formulas contained therein more simple and more practical. He thinks there are altogether too many formulas in the N. F. that take from 24 to 48 hours to make.—Midl. Drug., 1909, v. 43, p. 428.

Taylor, John J., asserts that the National Formulary as it has developed seems to be a list of substitutes for things the physician is already using. He thinks any substitute for what the physician is using should be eliminated.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 213.

Hynson, Hy. P., believes that the National Formulary should be a book created primarily to serve the best interests of humanity.—Pharm. Era, 1909, v. 42, p. 637.

Jacobi, Abraham, expresses the belief that the National Formulary is not a safe guide for the prescriber, and that the American Pharmaceutical Association is in honor bound to revise thoroughly the book and to consult its own chemical knowledge and not the chemical ignorance of physicians.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 233.

Oldberg, Oscar, thinks that it is remarkable that the Congress of the United States should have made a legal standard of the National Formulary prepared, owned, and published by an association which has the power to change its book any day, or to reduce its scope or add to it, or suspend its publication altogether.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 430.

The committee on president's address points out that while it is true that the National Formulary has been criticized, we should not lose sight of the fact that criticism is an evidence of interest in the object criticized, and that, taken as a whole, the criticism that has been offered is constructive in character.—*Ibid.*, p. 495.

Kline, Clarence M., in a report of the Richmond meeting of the N. W. D. A., calls particular attention to the indorsement given by that association to the remarks by Oscar Oldberg on the inclusion of the N. F. in the food and drugs act.—Am. J. Pharm., Phila., 1900, v. 81, p. 546.

Schneider, Albert, believes that the U. S. P. only should be recognized as the standard of purity and quality of drugs. He considers the N. F. a very unreliable offshoot or overflow product, of the U. S. P.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 741.

An editorial (*Pharm. Era*, 1909, v. 42, p. 241) commenting on the status of the National Formulary points out that while the N. F. has its defects the real remedy at the present time is to remove them through revision and correction, rather than cast out the book from recognition in law and pharmacy, at least until it has finally proved to be unnecessary or undesirable.

Seltzer, L. A., notes that there seems to be a feeling that since the N. F. has become a national standard it should confine itself as much as possible to strictly medicinal preparations, leaving toilet preparations and other recipes to the pharmacists themselves.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 941.

Flemer, Lewis, states that the three cardinal requisites for all medicinal products, from a pharmaceutical point of view, should be uniformity in potency, permanency, and appearance. He doubts if all or any of these requirements can be obtained in elixirs if fluid extracts are used in their preparation.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 190.

Kebler, L. F., in an address before the N. A. R. D., expresses the belief that all who are interested in the N. F. should hold together and eliminate every possible shortcoming in that book as rapidly as possible.—*N. A. R. D. Notes*, 1909, v. 8, p. 1167.

Wilbert, M. I., points out that the Committee of Revision can not be expected to do more than interpret the needs and indications for revision as they see them, and that any real shortcomings in the make-up or the content of the revised book should be considered as being indicative of the lack of interest displayed by American pharmacists.—*Southern Pharm. J.*, 1908-9, v. 1, p. 496.

An editorial (*N. A. R. D. Notes*, 1909, v. 9, p. 419) comments on some of the proposed N. F. additions and changes, and points out the desirability of having pharmacists take a keen and active part in the revision of this book.

An editorial (*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 324) calls attention to the report of the committee on the National Formulary which is published in the same number of the *Bulletin* (pp. 339-381). See also *Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 1059-1100.

An editorial (*Bull. Pharm.*, 1909, v. 23, p. 487) commenting on the revision of the National Formulary points out that, in giving a good deal of publicity to its deliberations, the committee has wisely paved the way to publicity in the matter of pharmacopœial revision.

Bruder, Otto E., presents a number of suggestions for the improvement of the National Formulary.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 963-967. Also *N. A. R. D. Notes*, 1909, v. 8, pp. 517-519, and *Bull. Am. Pharm. Ass.*, 1909, v. 4, pp. 230-232.

Cook, E. Fullerton, as chairman of the committee of the Philadelphia branch of the A. Ph. A., presents a compilation of suggestions



for improvements in the National Formulary. Also a number of suggestions for additions to that book.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 959-963.

Posey, H. G., presents a critical review of the National Formulary and makes a number of suggestions regarding changes in formulas and the omission of much of the extraneous matter now contained in the pages of the National Formulary.—*Ibid.*, pp. 980-998.

Goetting, E. C., presents a number of suggestions for the revision of the National Formulary.—*D.-A. Apoth. Ztg.*, N. Y., 1909-10, v. 30, pp. 29-30.

Hilton, Samuel L., presents a number of practical suggestions for the revision of the National Formulary, and outlines the history of that book.—*Pharm. Era*, 1909, v. 41, pp. 253-254.

Taylor, Augustus Carrier, calls attention to some of the supernumerary formulas of the National Formulary.—*Ibid.*, pp. 492-494.

An editorial (*Ibid.*, 1909, v. 42, p. 318) commenting on the demand for the National Formulary points out that a total of 32,000 copies have been published up to date, and asserts that it is astonishing that under the circumstances the circulation of the N. F. is not larger, for the new edition of the *Era Druggists' Directory* shows that there are 45,661 pharmacies in the United States.

La Wall, Charles H., reviews the Canadian Formulary and calls attention to some errors and inconsistencies. [See Bulletin No. 75, p. 48.]—*Am. J. Pharm.*, Phila., 1909, v. 81, pp. 11-15.

Schamelhout, A., calls attention to the first series of formulas for pharmaceutical specialties, published by the *Nederlandsche Maatschappij ter Bevordering der Pharmacie*.—*Bull. Soc. roy. d. pharm. Brux.*, 1909, v. 53, p. 279.

## 2. NEW AND NONOFFICIAL REMEDIES.

Wilbert, M. I., discusses the relation of New and Nonofficial Remedies to the Pharmacopœia of the United States.—*Western Druggist*, Chicago, 1909, v. 31, pp. 395-398.

Remington, Joseph P., expresses the opinion that the American Medical Association has done yeoman service, through the Council on Pharmacy and Chemistry, in publishing from time to time lists of modern remedies which are used by physicians to-day, and in sifting out those which are really valuable and condemning such as are, in their opinion, unworthy of serious consideration. The Council [members] have undoubtedly made some mistakes and in this respect they are like the [members of the] criticized committee of revision. It is impossible for any individual or committee to avoid the common fault of humanity.—*Am. J. Pharm.*, Phila., 1909, v. 81, p. 572.

An editorial (*Drug. Circ.*, N. Y., 1909, v. 53, pp. 328-329) points out the importance to druggists of the work of the Council on Pharmacy and Chemistry of the American Medical Association, and asserts that legitimate pharmacy should be thankful that there is such a body in existence as this.

Coblentz, V., discusses the amended rules of the Council on Pharmacy and Chemistry of the American Medical Association, and points out that the rules as presented represent material progress made in the gradual elimination of deception and fraud which have been in practice, without restraint, for many years. He thinks that it is high time that concerted action be taken by chemists, physicians, and pharmacists on both sides of the Atlantic, in order to control this nuisance.—*J. Ind. Eng. Chem.*, 1909, v. 1, pp. 119-120.

An editorial (*Pharm. J. Lond.*, 1909, v. 28 (82), pp. 416-417), in commenting on New and Nonofficial Remedies, asserts that a determined and most commendable effort is being made by our trans-Atlantic friends to grapple with an evil that has long threatened to disorganize and demoralize both medical and pharmaceutical professions.

Beates, Henry, thinks that the Council on Pharmacy and Chemistry of the American Medical Association should revise some of its rules, and asserts that in some instances worthless remedies are given recognition because they comply with the rules. On the other hand, valuable preparations are denied recognition for not complying with the rules. He thinks that this attitude deprives us of some good remedies.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 113.

An editorial (*Critic & Guide*, 1909, v. 12, pp. 118-120) discusses the Council on Pharmacy and Chemistry of the American Medical Association, and calls attention to some of the objectionable decisions rendered by that body.

Ullman, J. S., says that the Council on Pharmacy and Chemistry of the A. M. A. has been rendering a great service to both professions in its work of separating the sheep from the goats, in spite of the fact that it is persistently being maligned by the goats.—*Proc. Mississippi Pharm. Ass.*, 1909, p. 19.

Noll, Matt, quotes a letter from Lehn & Fink to the effect that "while the U. S. P. and N. F. propaganda work and the somewhat peculiar methods of the American Medical Association, as also the operations of the pure food and drug law, have had more or less effect on the proprietary medicine industry, this has not been to the detriment of the deserving preparations, but only to the obviously fraudulent or valueless products."—*Proc. Kansas Pharm. Ass.*, 1909, pp. 45-46.

The committee on the United States Pharmacopœia of the American Medical Association points out that it is quite evident that New

and Nonofficial Remedies is being considered as a propharmacopœia from which the best will be transferred to the Pharmacopœia itself.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 221.

Beringer, Geo. M., makes a plea for cooperation on the part of the American Medical Association in the work now undertaken by the American Pharmaceutical Association, establishing standards for nonofficial remedies.—*Ibid.*, p. 219.

The committee on standards for nonofficial drugs and chemical products present a comprehensive report with a tentative list of non-official preparations for which standards are desired.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 501-520.

#### SYNTHETICS.

Solis-Cohen, Solomon, thinks that the introduction of new drugs, especially synthetic, into the Pharmacopœia, presents greater difficulty of detail, but the principle is the same as for other substances.—Boston M. & S. J., 1909, v. 160, p. 52.

"Xrayser" points out that, while the synthetic products are remarkable as laboratory achievements, it is still an open question whether mankind is benefited physiologically by these chemicals. To say the least, they have offered opportunities for the cultivation of drug habits, and there are many people to whom opportunities of this kind are inevitably fatal.—Chem. & Drug., 1909, v. 75, p. 341.

Wilbert, M. I., points out that while the patenting of a medicinal compound may or may not be in keeping with the best interests of the patient or of the community at large, it is permitted by our present patent law and, no doubt, will continue to be permitted so long as the principles involved in patent laws are generally accepted as being equitable.—Western Druggist, Chicago, 1909, v. 31, p. 396.

Fourneau, Ernest, presents a comprehensive paper on trade-marks in matters pharmaceutical.—Bull. sc. pharmacol. Par. 1909, v. 16, pp. 330-338, 412-420. See also Proc. VIIth Internat. Congress App. Chem., Sec. XI, Law, Political Economy, etc., 1909, London, 1910, pp. 42-47.

The latter publication also contains a number of additional references on the practical application of patent and trade-mark laws and their relation to the development of chemical industries.

#### NEW REMEDIES.

Rabow, S., presents a review of the new remedies introduced during 1908.—Chem. Ztg., Cöthen, 1909, v. 33, p. 393 ff.

Zernik, F., reviews the more important new remedies of 1908.—Ber. d. pharm. Gesellsch., Berl., 1909, v. 19, pp. 89-117.

Weinstein, Joseph, presents a comprehensive review of the new remedies of 1908-9, being the report of the chairman of the committee

on new remedies of the New York State Pharmaceutical Association.—*Am. Druggist*, N. Y., 1909, v. 55, p. 212.

Coblentz, V., presents a review of the progress of pharmaceutical chemistry in 1908, and calls attention more particularly to some of the newer remedies introduced or widely discussed.—*J. Ind. Eng. Chem.*, 1909, v. 1, pp. 257-260; 310-312.

Dunning, H. A. B., in a report of the progress of pharmacy, calls attention to and describes some of the more widely used new remedies.—*Proc. Maryland Pharm. Ass.*, 1909, pp. 54-59.

Richter, E., reviews the chemistry of the more important new remedies and specialties introduced in the year 1909.—*Arb. a. d. pharm. Inst. d. Univ. Berl.* (1909), 1910, v. 7, pp. 3-23.

Riedel's Mentor (Berlin, 1909, pp. 1-49) presents a compilation of the names of the newer remedies, including an enumeration of their composition, properties, and uses.

Mannich, C., in a review of the recent progress in pharmaceutical chemistry, states that the number of new remedies introduced has been rather limited; some of them are assured of a permanent place in *materia medica*, while the greater part, however, will no doubt disappear from view in a short time.—*Fortschr. d. Chem.*, 1909, v. 1, p. 199.

Hunt, Reid, asserts that if every important medical school had a really efficient department of pharmacology, in which properly trained men received sufficient compensation, so as not to be compelled to engage in the practice of medicine or in commercial work, but who could devote all their time to teaching and investigation, giving their results freely to the world, as do the chemists and physicists in the best universities, the whole aspect of the proprietary medicine question would soon change.—*J. Am. M. Ass.*, 1909, v. 53, p. 499.

Ehrlich, P., reviews the development and outlines the present status of chemotherapy.—*Ber. d. deutsch. chem. Gesellsch., Berl.*, 1909, v. 42, pp. 17-47.

Seifert, Otto, presents a compilation on the secondary action of some of the newer remedies.—*Apoth. Ztg., Berl.*, 1909, v. 24, pp. 19-20, 26-27, 35-36, 45-46.

Einhorn, Alfred, in an additional contribution on new remedies, discusses the adaptation of aromatic esters in medicine and the use more particularly of the benzoic acid esters as a basis for compounds having local anæsthetic value.—*Ann. d. Chemie, Leipz.*, 1910, v. 371, pp. 125-131.

Forrester, G. P., comments on a German bill for the suppression of secret medicines and allied evils, which he says German medical opinion does not consider stringent enough in view of the vital importance of the issue at stake.—*Lancet*, 1909, v. 177, p. 183. See also editorial, p. 403.

The Swedish correspondent (*Lancet*, 1909, v. 177, p. 419) discusses quackery and secret remedies in Sweden.

#### 4. ANALYTICAL DATA.

##### 1. ADULTERATIONS.

Remington. Joseph P., points out that adulteration and sophistication are extensive and widespread, and hence the march to development and progress points clearly to the necessity for obtaining more satisfactory standards for purity and strength in medicinal substances.—*Am. J. Pharm.*, Phila., 1909, v. 81, p. 576.

The annual report of the Secretary of the U. S. Department of Agriculture points out that, under section 7 of the food and drugs act, adulterants are of two kinds, namely, (1) those which may be injurious to health, and (2) those which are not unwholesome, but which debase the character or value of the food. Adulterations of the latter type usually disappear when the foods are properly branded so that the consumer knows exactly what he is purchasing.—*Ann. Rep. U. S. Dept. Agric.* for 1909, 1910, p. 37.

Beringer, George M., points out that the paragraph (U. S. P. VIII p. xxxviii) limiting the percentage of moisture in nonhygroscopic crystallized chemicals to 3 per cent, and providing that powders, capillary crystals (does this include granular salts?), and all hygroscopic salts are to be dispensed in a condition of sensible dryness, needs careful consideration and revision.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 794.

An editorial (*Am. Druggist*, N. Y., 1909, v. 55, p. 239) comments on the interest evidenced at the Richmond meeting of the N. W. D. A. in the prevention of adulteration, and states that the publication of such technical reports as that of the committee on prevention of adulteration furnishes an invaluable basis for pharmacopœial work.

Plaut, Albert, calls attention to some of the popular misconceptions regarding adulterated drugs, and asserts that druggists themselves are responsible for much of this misconception.—*Ibid.*, v. 54, pp. 97 and 98.

Vanderkleed, Charles E., commenting on the report of the committee on adulteration, points out that reports of this kind are of value in so far as they reflect improvement or retrogression in general conditions of the drug market. He believes that there is a steady improvement in the quality of both drugs and chemicals offered on the American market.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 119.

Dohme and Engelhardt discuss the purity of some official and nonofficial drugs and chemicals, and present analytical data on about 9,000 samples of chemicals and drugs examined during the year.—

Proc. Am. Pharm. Ass., 1909, v. 57, pp. 713-719. See also Am. J. Pharm., Phila., 1909, v. 81, p. 438.

Kebler, L. F., discusses the variety and kind of adulteration that is being practiced at the present time, and point out how the Government is trying to protect the interest of the consumers.—*Ibid.*, pp. 73-76.

Kline, C. M., asserts that adulteration is still practiced to a considerable extent, and is bound to continue until such time as the food and drugs act becomes more universally operative.—Proc. N. W. D. A., 1909, p. 120.

Kahn, Joseph, points out that adulteration is still practiced to some extent, notwithstanding all the efforts of national and State boards and associations to suppress it.—Am. Druggist, N. Y., 1909, v. 55, p. 5.

Francis, J. M., expresses the belief that the results noted by him in the analytical laboratory indicate that there is a steady improvement in the quality of the various chemicals offered on the American market, and the same is true of drugs.—Proc. Pennsylvania Pharm. Ass., 1909, p. 120.

Pleijel, Carl, reports on the examination of a number of suspected samples of chemicals, and outlines detailed directions for the systematic examination of the several substances.—Svensk. farm. Tidskr., 1909, v. 13, pp. 337-341; 357-363.

The fourteenth annual report of the Local Government Board for Scotland, covering the year 1908, reports on 6,891 samples of food and drugs examined in which the percentage of adulteration was found to be 10.8, the adulteration of the drugs being 12.2 per cent.—Chem. & Drug., Lond., 1909, v. 75, pp. 17-18.

An editorial (Pharm. J., Lond., 1909, v. 28 (82), p. 181) commenting on the twenty-seventh annual report on the administration of the sale of food and drugs acts shows that the analyses of the samples revealed the fact that the proportion found to be adulterated was less than in the previous year.

A lengthy report of the Second International Congress for the Suppression of Fraud and of the Adulteration of Foods and Drugs held at Paris, October 18-24, 1909, is presented.—Chem. Ztg., Cöthen, 1909, v. 33, p. 1226 ff.

Tests and requirements for chemicals, as finally agreed to at the White Cross Congress, are presented in abstract.—Chem. & Drug., Lond., 1909, v. 75, pp. 681-682.

## 2. REAGENTS.

Wiley, H. W., asserts that during the past year the quality of the chemical reagents offered to the Bureau of Chemistry has markedly improved, as compared with those examined during previous years.—Ann. Rep., U. S. Dept. Agric., for 1909, 1910, p. 431.

Baker, J. T., presents some interesting points in the manufacture of C. P. chemicals.—*J. Ind. Eng. Chem.*, 1909, v. 1, pp. 464–466. See also *Proc. VIIth Internat. Congress App. Chem.*, Sec. 1, *Anal. Chem.*, 1909, London, 1910, p. 189–190.

Kebler, L. F., in a report as referee on the testing of chemical reagents, points out that there appears to be a general feeling of dissatisfaction with the nomenclature of chemical reagents at present in vogue, but that the committee is as yet unable to make definite recommendations regarding changes.—*Proc. Ass. Off. Agric. Chem.*, 1909, 26th Ann. Conv., pp. 52–53 (*Bull. Bur. Chem. U. S. Dept. Agric.*, 1910, No. 132).

Hart, Edward, commenting on chemical reagents and the nomenclature applied to them, expresses the belief that it is necessary that the customer shall himself frequently examine what he buys.—*Chem. Eng.*, 1909, v. 9, p. 52.

Schneider, A., points out some precautions that are to be taken in the preparation of Nessler's reagent, and the importance of following the method of procedure outlined.—*Pharm. Zentralh.*, 1909, v. 50, p. 546.

Clark, A. H., reports observations on the keeping qualities of some U. S. P. volumetric solutions.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 874–878.

Kollo, Constantin, discusses the use of potassium bitartrate as a reliable basis for titrimetric solutions.—*Pharm. Zentralh.*, 1909, v. 50, pp. 315–317.

Hefelmann, Rudolf, calls attention to some of the suggestions previously made for utilizing potassium bitartrate as a standard for normal solutions.—*Ibid.*, pp. 334–335.

v. Bruchhausen, F., discusses the standardization of the volumetric solutions of the Ph. Germ.—*Pharm. Ztg.*, Berl., 1909, v. 54, pp. 810–811.

Wiebelitz, H., discusses the article by v. Bruchhausen, and points out a number of objections to the suggestions made therein.—*Ibid.*, p. 859.

Ribon, Marius, presents a note on the iodine-potassium iodide solution of the Ph. Fr. V, the directions for the preparation of which, he thinks, should be revised.—*Bull. sc. pharmacol.*, Par., 1909, v. 16, pp. 716–718.

Storm, C. G., discusses the making and the use of potassium-iodide-starch paper.—*J. Ind. Eng. Chem.*, 1909, v. 1, pp. 802–803.

Arnould and Goris discuss the action of the sulphovanillic reagent of Ronceray on certain chemical compounds and certain plant constituents.—*Bull. sc. pharmacol.*, Par., 1909, v. 16, pp. 191–197.

van Raalte, A., outlines a method for making an alcoholic solution of potassium hydroxide, by circulatory displacement, that will remain colorless.—*Chem. Weekblad.* 1909, v. 6, pp. 252–253.

## 3. INDICATORS.

Glücksman, C., discusses the characteristics of the indicators used in titrimetric estimations, and expresses the belief that the ionic theory does not sufficiently explain the behavior of indicators, and that the processes involved are essentially chemical.—Pharm. Prax., 1909, v. 8, pp. 345-352.

Elvove, Elias, discusses the fixing power of alkaloids on volatile acids and its application to the estimation of alkaloids with the aid of phenolphthalein.—Bull. Hyg. Lab. U. S. P. H. and M.-H. S., 1909, No. 54, pp. 25.

Runne, E., discusses the use of phenolphthalein and of Poirrier's blue as indicators in the titration of the salts of alkaloids.—Apoth. Ztg., Berl., 1909, v. 24, pp. 662-663.

Weitbrecht, W., asserts that the use of hematoxylon as an indicator in the Ph. Helv. IV, for alkaloids of hyoscyamus, leads to uncertain results. He prefers iodeosin as an indicator.—Pharm. Zentralh., 1909, v. 50, p. 113.

Perkins, jr., and Robinson, in a further report on brazilin, hæmatoxylin, and their derivatives, discuss the constitution of trimethyl-brazilone, of  $\alpha$ - and  $\beta$ -anhydrotrimethylbrazilone, and of the corresponding hæmatoxylin derivatives.—J. Chem. Soc., Lond., 1909, v. 95, pp. 381-407.

## 4. PHYSICAL CONSTANTS.

Sadtler, Samuel P., asserts that one of the features of the U. S. P. VIII is the thoroughness with which the physical constants of all organic compounds have been determined and made use of as criteria of purity of the various substances.—Proc. VIIth Internat. Congress App. Chem., Sec. VIIb., Pharmacy, 1909, London, 1910, p. 118.

Moerk, Frank X., believes that the legal status of the U. S. P. warrants the introduction of official methods for determining: (1) specific gravities, (2) melting points, (3) congealing points, (4) boiling points, and (5) solubilities.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 919.

Rosengarten, George D., expresses the belief that the Pharmacopœia should include definite directions for the determination of melting and boiling points, also of solubilities.—Am. Druggist, N. Y., 1909, v. 55, p. 365. Also Merck's Rep., 1909, v. 18, p. 336.

Murray, B. L., thinks that from a medicinal point of view, or from the point of view of the analyst looking into the question of quality, we could safely do without the specific gravity of bromine, of mercury, of iodine, of solution of formaldehyde, and do without this entire class of data that serves no important purpose in this place.—*Ibid.*, p. 316.



## SPECIFIC GRAVITY.

Coblentz, Virgil, points out that since densities are so extensively employed throughout the Pharmacopœia, an accurate definition of them is desirable in conjunction with the methods for determining the same.—*Am. Druggist*, N. Y., 1909, v. 55, p. 306.

Berger, Fr., in discussing the Ph. Helv. IV, suggests that the specific gravity tables published in books of this kind be issued in duplicate, as the tables, from their constant use, soon become soiled and unsightly.—*Schweiz. Wchnschr. f. Chem. u. Pharm.*, Zürich, 1909, v. 47, p. 450.

"L. R." presents a comparison between specific gravity, weight per cent, or degrees Brix and degrees Baumé.—*Pharm. Zentralh.*, 1909, v. 50, pp. 761-763.

An unsigned article points out that the Ph. Hung. III directs that the specific gravity of liquids is to be determined in flasks graduated to hold exactly 100 cc. and that the flask and its content are to be cooled in a water bath for 15 minutes to 15° C. and the weight determined to 0.10 gm.—*Ztschr. d. allg. österr. Apoth.-Ver.*, Wien, 1909, v. 47, p. 556.

v. Wartenberg, H., discusses the determination of the specific gravity of small quantities of fluids.—*Ber. d. deutsch. chem. Gesellsch.*, Berl., 1909, v. 42, pp. 1126-1131.

Wade and Merriman report observations on the correction of the specific gravity of liquids for the buoyancy of air.—*J. Chem. Soc.*, Lond., 1909, v. 95, pp. 2174-2181.

Brinton, Clement S., expresses the belief that the Westphal balance is not sufficiently accurate, and that owing to its construction it is impossible to read closer than one place in the fourth decimal place, where a variation of 1 would in some portions of the scale cause a variation of over 0.1 per cent in the result.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 81.

An unsigned article describes and illustrates a new specific gravity balance.—*Chem. Eng.*, 1909, v. 9, p. 191.

Meade, Richard K., describes and illustrates an improved Le Châtelier specific gravity bottle.—*Ibid.*, p. 145.

Macdougald, G. D., describes an improved apparatus for the rapid estimation of specific gravity.—*Proc. VIIth Internat. Congress App. Chem.*, Sec. 1, *Anal. Chem.*, 1909, London, 1910, p. 76.

Hubbard, Prevost, describes and illustrates a useful form of pycnometer for determining the specific gravity of semisolid bitumens.—*J. Ind. Eng. Chem.*, 1909, v. 1, pp. 475-476.

## SOLUBILITIES.

Cohn, A. I., thinks the Pharmacopœia should include an official method for determining the solubilities, and points out that different

results are had by different methods.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 821.

Rosengarten, George D., points out that the determining of the solubility of substances by dissolving a specified quantity of the chemical in a sufficient amount of solvent, or by determining the amount remaining in a saturated mother liquor, leads to widely varying results.—*Am. Druggist*, N. Y., 1909, v. 55, p. 365.

Seidell, Atherton, discusses the solubilities of the salicylates of the *Pharmacopœia* in aqueous solutions at 25°, and illustrates the subject with curves, showing the relative solubility of the several salts in water, alcohol, and mixtures of the two substances.—*J. Am. Chem. Soc.*, 1909, v. 31, pp. 1164–1168.

Schroeder, J., describes and illustrates an apparatus for determining the solubility of substances at the boiling point of the solvent. He also describes and illustrates a simple apparatus for extraction in the cold, and for the determination of solubilities at room temperatures.—*Ztschr. f. anal. Chem. Wiesb.*, 1909, v. 48, pp. 349–352.

Stoltzenberg, H., describes and illustrates an apparatus for the determination of melting points, and of the solubility of small quantities of substances.—*J. Soc. Chem. Ind.*, 1909, v. 28, p. 1328. Also *Ber. d. deutsch. chem. Gesellsch., Berl.*, 1909, v. 42, pp. 4322–4324.

Getman and Wilson, in a note on solubility determinations with the refractometer, present a number of tables and conclude that the inspection of the data recorded therein shows that the refractometric method for solubility determination gives at best only approximate results.—*Am. Chem. J.*, 1909, v. 41, pp. 344–348.

Jones, Harry C., discusses the present status of the solvate theory, and reviews the work of Jones, Chambers, Frazer, Getman, Bassett, West, McMaster, Pearce, Stine, Jacobson and Jones, and Uhler, and concludes by presenting a summary of the evidence obtained so far.—*Ibid.*, pp. 19–57.

Jones and Anderson report the absorption spectra of solutions of a number of salts in water, in certain nonaqueous solvents, and a mixture of these solvents with water. The article is liberally illustrated by photographs of the spectra observed.—*Ibid.*, pp. 163–208, 276–326.

Gillet, Cam., discusses the theory of aqueous solutions and the influence of temperature and of the volume of the solution.—*Bull. Soc. chim. Belg.*, 1909, v. 23, pp. 119–129.

Timmermans, J., reports researches on the theory of concentrated solutions.—*Ibid.*, pp. 129–148.

Fühner, H., discusses the reciprocal solubility influences of aqueous solutions of ether, chloroform, phenol, and other substances.—*Ber. d. deutsch. chem. Gesellsch., Berl.*, 1909, v. 42, pp. 887–889.

Schmidt and Jones report a series of observations on the conductivity and viscosity of mixed solvents containing glycerol.—*Am. Chem. J.*, 1909, v. 42, pp. 37–95.

Hill and Simmons report observations on the solubility of salts in concentrated acids.—*J. Am. Chem. Soc.*, 1909, v. 31, pp. 821–839. Also *Ztschr. f. physik. Chem.*, 1909, v. 67, pp. 594–617.

Hudson, C. S., discusses the influence of hydration in solution as the cause of certain solubility influences.—*J. Am. Chem. Soc.*, 1909, v. 31, pp. 63–66.

Herz, W., presents a contribution to our knowledge of the influence of one substance on the solubility of another. He discusses more particularly the influence of the haloid salts of alkalies on the solubility of succinic acid.—*Ztschr. f. anorg. Chem.*, 1909–10, v. 65, pp. 341–344.

Schreinemakers and de Baat discuss the equilibrium in quaternary systems, more particularly the system water-sodium chloride-barium chloride-copper chloride.—*Ztschr. f. physik. Chem.*, 1908–9, v. 65, pp. 586–594.

Wilbert, M. I., discusses the solubility statements in the *Pharmacopœia* of the United States, and expresses the belief that for all practical purposes the use of certain qualitative expressions, if adequately defined, would suffice. Some concerted attempt should be made to confine the definitions of the several terms to readily remembered limitations. Thus for all ordinary purposes we might include in the *Pharmacopœia* a list of definitions somewhat as follows:

Articles that are soluble in less than 1 part of solvent=very soluble.

From 1 to 10 parts of solvent=freely soluble.

From 10 to 100 parts of solvent=soluble.

From 100 to 1,000 parts of solvent=slightly soluble.

From 1,000 to 10,000 parts of solvent=very slightly soluble.

From 10,000 to 100,000 parts of solvent=nearly insoluble.

More than 100,000 parts of solvent=practically insoluble.

—*Proc. Pennsylvania Pharm. Ass.*, 1909, pp. 332–333. See also *Am. Druggist*, N. Y., 1909, v. 55, p. 5.

#### MELTING POINT DETERMINATIONS.

Coblentz, Virgil, asserts that accurate determination of melting and boiling points requires careful attention to small details, and since many professional chemists are inclined to be careless, much less can be expected from inexperienced operators. He also points out that it is advisable to question the accuracy of commercial thermometers, as little reliance can be placed on them until they have been compared with an authoritative standard.—*Am. Druggist*, N. Y., 1909, v. 55, p. 306.

White, Walter P., presents results of observations on melting-point phenomena and a summary of his conclusions.—*Am. J. Sc.*, 1909, v. 28, pp. 453-473.

Cowie, W. B., reports experiments to show the variation which may be expected in the melting points of one and the same substance obtained by different methods.—*Brit. & Col. Drug.*, 1909, v. 55, p. 63.

Stanislaus, I. V. S., points out that there are two reasons for the great variations often reported in melting-point determinations of the same compounds, (1) the absorption of heat by the glass and (2) the expansion of the glass. This trouble could in part be eliminated by having the melting-point tubes very shall and of very thin glass.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 144.

Remington, Joseph P., reports that the board of trustees has made arrangements with the Department of Public Health and Marine-Hospital Service to have the matter of melting and boiling points gone over this summer, and an investigator is now at work in the Hygienic Laboratory determining upon the best uniform plan for arriving at the boiling and melting points.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 820.

Wooyenaka, Keizo, points out that in the Ph. Japon. III the method of determining the melting points of chemical substances was unified, using a capillary tube of not exceeding 1 millimeter in inner diameter.—*Am. Druggist, N. Y.*, 1909, v. 54, p. 260.

An unsigned article describes the Ph. Hung. III methods for determining the melting point of chemical substances and the congealing point and melting point of fats.—*Ztschr. d. allg. österr. Apoth.-Ver.*, Wien, 1909, v. 47, p. 556.

An abstract describes and illustrates the method devised by P. B. Dallimore for determining the melting points of fatty acids, waxes, and like substances.—*Western Druggist, Chicago*, 1909, v. 31, p. 55.

Caille, E., in a report of a physicochemical study of pharmaceutical incompatibilities, presents a number of curves showing the variations in the solidification temperature of mixtures of camphor with salol, betanaphthol, and resorcin.—*Bull. Soc. sc. et méd. d. l'ouest, Rennes*, 1909, v. 18, pp. 77-86.

Jonker, W. P. A., reports observations on the melting point and boiling point curve in a binary system.—*Ztschr. f. physik. Chem.*, 1909, v. 66, pp. 300-306.

van Laar, J. J., reports observations on the melting point and congealing point curve of binary systems, when the solid phase is a mixture of both components.—*Ibid.*, pp. 197-237.

Pawlow, P., discusses the relation of the melting point to the surface energy of a solid body.—*Ibid.*, 1908-9, v. 65, pp. 1-35. See also pp. 545-548.

Bunker, Sidney W., describes and illustrates the apparatus used in connection with a new method for determining melting points.—*Pharm. J., Lond.*, 1909, v. 28 (82), p. 324. Also *Merck's Rep.*, 1909, v. 18, p. 171.

Stoltzenberg, H., describes and illustrates an apparatus for the determination of melting points.—*Ber. d. deutsch. chem. Gesellsch., Berl.*, 1909, v. 42, pp. 4322–4324. Also *J. Soc. Chem. Ind.*, 1909, v. 28, p. 1328.

Bosart, Louis W., reports that a mixture of 10 parts of refined cottonseed oil and 1 part of beeswax makes a very satisfactory oil bath. It emits very little fume below 250° C. and can be used safely almost throughout the range of the ordinary mercury thermometer, having a flash point above 300° C. when heated in an open cup.—*J. Am. Chem. Soc.*, 1909, v. 31, p. 724. See also *Chem. News, Lond.*, 1909, v. 100, p. 238.

#### BOILING POINT DETERMINATIONS.

Remington, Joseph P., in discussing the desirability of having official methods for determining the melting and boiling points, expresses the belief that there are probably no great errors in the melting and boiling points as given in the *Pharmacopœia*, but points out that the question is nevertheless an important one and becomes more important in view of the adoption of the *Pharmacopœia* as a legal standard.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 821.

An unsigned article points out that the *Ph. Hung.* III requires that the boiling point be determined in a distilling flask with a sufficiently long neck to insure that the bulb as well as the scale of the thermometer are surrounded by vapors of the boiling substance.—*Ztschr. d. allg. österr. Apoth.-Ver.*, Wien, 1909, v. 47, p. 556.

Schimmel & Co. (Semi-Annual Report, April, 1909, p. 100), in discussing the *Ph. Svec.* IX requirements for boiling points, point out that to obtain accurate results the whole of the mercury column concerned must be surrounded by the steam of the liquid, and that the barometric pressure must also be considered. The *Ph. Svec.* IX says nothing concerning this.

Jonker, W. P. A., reports observations on the melting point and boiling point curve in a binary system.—*Ztschr. f. physik. Chem.*, 1909, v. 66, pp. 300–306.

Earl, J. C., discusses certain relations between boiling points, and asserts that there appears to be a definite rise in boiling point produced when the chlorine in an organic compound is replaced by bromine.—*Chem. News, Lond.*, 1909, v. 100, p. 245.

von Rechenberg, C., discusses a little-observed source of error in the boiling-point determinations under reduced pressure, describes and illustrates the apparatus for determining boiling points under

reduced pressure according to Anschütz, and the apparatus for the distillation in absolute vacuum according to Krafft-Hansen.—*J. f. prakt. Chem.*, Leipz., 1909, v. 79, pp. 475-491.

Hansen, Christian Johannes, criticizes the contribution by von Rechenberg.—*Ibid.*, 1909, v. 80, pp. 449-455.

Krafft, F., presents some observations on boiling as overcoming gravity and the determination of boiling points under ordinary pressures. He points out that at the present time absolutely accurate boiling-point determinations are not readily made.—*Ibid.*, pp. 469-472.

von Rechenberg, C., comments on the above paper.—*Ibid.*, pp. 547-555.

#### THERMOMETRY.

Sadtler, S. P., points out that thermometers standardized by the Bureau of Standards at Washington are obtainable at a reasonable cost, and all thermometers should be compared with these. He does not consider the pharmacopœial standards harsh, certainly not to modern scientific pharmacists.—*Merck's Rep.*, 1909, v. 18, p. 336.

Murray, Benjamin L., advocates a return to 15° C., as the temperature to be adopted for taking the specific gravity so as to conform with the European laboratories.—*Ibid.*, p. 336.

Bradley, Robert E., discusses liquid mixtures for maximum and minimum thermometers.—*J. Ind. Eng. Chem.*, 1909, v. 1, p. 813.

Wooyenaka, Keizo, points out that in the Ph. Japon. the centigrade scale has been used for determining temperature since the first edition was published, and the standard temperature is put at 15° C., it being most suitable for the climate and construction of houses in Japan.—*Am. Druggist*, N. Y., 1909, v. 54, p. 260.

An unsigned article points out that the Ph. Hung. III directs that ordinary temperature is to be considered as ranging from 18° to 20°, maceration is to be conducted at from 30° to 40°, and the determination of specific gravity is to be made at 15°; reagents and volumetric solutions are also to be prepared at 15° unless otherwise specifically provided for. A water bath is understood to mean boiling water or steam at a temperature not exceeding 100° C.—*Ztschr. d. allg. österr. Apoth.-Ver.*, Wien, 1909, v. 47, p. 584.

#### POLARIZATION AND REFRACTION.

Byk, A., calls attention to some of the advancements that have been made in connection with the use of the spectroscope and the refractometer.—*Fortschr. d. Chem.*, 1909, v. 1, pp. 172-179.

Cowie, W. B., discusses the possible use of optical rotation in the assay of jalap, scammony, orizaba, and tampico resins, and presents a

table showing the comparison of the values obtained for the optical activities of these resins.—*Brit. & Col. Drug.*, 1909, v. 55, p. 63.

Vanderkleed, Charles E., in a discussion on the determination of alcohol in galenical preparations points out that, inasmuch as some of the substances which are liable to contaminate the distillate and which cause a vitiation of the specific gravity will also cause vitiation of the refractive index, the method of determining alcohol by means of the immersion refractometer does not offer any special advantage in a general laboratory.—*Am. J. Pharm.*, Phila., 1909, v. 81, p. 141.

Lehn & Fink (Annual Report for 1909, p. 41) assert that polariscope readings on essential oils must be taken directly on the oils, undiluted in any manner. It is pointed out that the optical rotation of cane sugar in aqueous solutions varies in exact proportion to the percentage of sugar present; in this respect cane sugar and a half dozen other substances are exceptional. In the case of the large majority of optically active substances, including volatile oils, the angle of rotation is not proportional to the percentage of active substance present.

Rosenthaler, L., reports observations on the artificial production and the natural occurrence of optically active bodies.—*Ztschr. d. allg. österr. Apoth.-Ver. Wien*, 1909, v. 47, pp. 209–211.

Falk, K. George, presents observations on the change in refractive index with temperature, and reports a number of experimental results.—*J. Am. Chem. Soc.*, 1909, v. 31, pp. 86–107. See also pp. 806–821.

Patterson and Montgomerie, in a further contribution on the influence of solvents on the rotation of optically active compounds, discuss the influence of mixed solvents.—*J. Chem. Soc., Lond.*, 1909, v. 95, pp. 1128–1142.

##### 5. APPARATUS.

Schelenz, Hermann, discusses and illustrates the evolution of cooling devices in connection with distilling apparatus.—*Chem. Ztg.*, Cöthen, 1909, v. 33, pp. 141–142, 153–155.

Stephany, J. K., describes a homemade still, a copper wash boiler, which he has found useful and economical.—*Proc. Wisconsin Pharm. Ass.*, 1909, p. 66.

Reiff, Hermann J., describes and illustrates a pressure regulator for vacuum distillation.—*Ztschr. f. ang. Chem.*, 1909, v. 22, pp. 1360–1361.

Bredt and van der Maaren-Jansen describe and illustrate an apparatus for vacuum distillation, with provisions for electrically heating the conducting tube and of isolating substances having a high or a low melting point.—*Ann. d. Chem. Leipz.*, 1909, v. 367, pp. 354–358.

Blanchi, A., describes and figures an apparatus for concentration in vacuo.—*Boll. chim. farm. Milan*, 1909, v. 48, pp. 56–61.

Brandel and Kremers present a historical review of the pharmaceutical balance, its development and present-day uses, also a number of illustrations.—*Midl. Drug.*, 1909, v. 43, pp. 500–503, 546–550.

Bowser, L. T., describes and illustrates a simple cover for analytical weights.—*J. Ind. Eng. Chem.*, 1909, v. 1, p. 377.

“Xrayser” discusses the origin of “Balneum Mariæ,” or, as it is usually termed in old books, “bain-Marie,” and points out that the term is found in the medical and chemical writing of Arnold, of Villa Nova, and Raymond Lully, who were famous 600 years ago, and they employ it without any explanation, as if it was well understood.—*Chem. & Drug.*, Lond., 1909, v. 75, p. 711.

An unsigned article describes and illustrates a test-tube water bath, by means of which four test tubes may be heated at once.—*Am. Druggist*, N. Y., 1909, v. 54, p. 69.

Berger, Fr., discusses the use of gas in pharmaceutical laboratories and presents a number of illustrations of apparatus to be used in connection therewith.—*Schweiz. Wchnschr. f. Chem. u. Pharm.*, Zürich, 1909, v. 47, pp. 309–312.

Stein, Heinrich, describes and illustrates a modification of the Soxhlet extraction apparatus.—*Chem. Ztg.*, Cöthen, 1909, v. 33, p. 1115. See also Lenz, W., *Apoth. Ztg.*, Berl., 1909, v. 24, pp. 374–375; Prager, A., *Ztschr. f. öffentl. Chem.*, 1909, v. 15, p. 396.

von der Heide, C., describes with illustrations some modifications of perforation and of extraction apparatus.—*Ztschr. f. Unters. Nahr. u. Genussm.*, 1909, v. 17, pp. 315–320.

Gebhard and Thompson describe and illustrate an apparatus for continuous extracting of solids.—*Chem. News*, Lond., 1909, v. 99, p. 124.

Couman, Douglas H. B., describes and illustrates a simple mechanical stirrer.—*Pharm. J.*, Lond., 1909, v. 29 (83), p. 670. Also *Chem. Eng.*, 1909, v. 10, p. 199.

Dallimore, P. B., describes and illustrates a pipette wash bottle, by means of which it is possible to wash a precipitate with a known quantity of water.—*Pharm. J.*, Lond., 1909, v. 28 (82), p. 527.

Dowzard, Edwin, describes and illustrates a wash bottle to be used in connection with compressed air.—*Am. J. Pharm.*, Phila., 1909, v. 81, pp. 175–176.

Havenhill, L. D., describes and illustrates a convenient funnel support.—*J. Am. Chem. Soc.*, 1909, v. 31, p. 62. Also *Chem. News*, Lond., 1909, v. 99, p. 88.

Dallimore, P. B., describes and figures a reservoir burette.—*Pharm. J.*, Lond., 1909, v. 29 (83), p. 235. Also *Merck's Rep.*, 1909, v. 18, p. 323.



An unsigned article describes and illustrates a new burette.—*Apoth. Ztg.*, Berl., 1909, v. 24, p. 680. See also p. 912.

Méker, G., describes and illustrates a modified Bunsen burner.—*Chem. Ztg.*, Cöthen, 1909, v. 33, p. 1143.

An unsigned article describes and illustrates the universal crucible support designed by G. T. Holloway.—*Chem. News*, Lond., 1909, v. 99, pp. 119–120.

Easley, C. W., describes and illustrates a substitute for forceps and for triangles in desiccators.—*J. Am. Chem. Soc.*, 1909, v. 31, pp. 463–464.

Dowzard, Edwin, describes and illustrates a pressure-equalizing attachment for desiccators.—*Merck's Rep.*, 1909, v. 18, p. 114.

Kempf, Richard, describes and illustrates a new vacuum exsiccator.—*Chem. Ztg.*, Cöthen, 1909, v. 33, p. 145.

Keen, Wm. Herbert, describes and illustrates a homemade electric furnace.—*J. Ind. Eng. Chem.*, 1909, v. 1, pp. 741–742.

Campbell and Gott describe and illustrate a rapid cooling electrically heated combustion tube.—*Ibid.*, pp. 739–741.

Shimer, Porter W., describes and illustrates a simplified combustion crucible.—*Ibid.*, pp. 738–739.

Jennings, C. A., describes and illustrates a modified Kjeldahl connecting bulb.—*Ibid.*, p. 737. See also Gray, G. Watson,, pp. 813–814.

Sheridan, G. E., describes and illustrates a simple gas generator.—*Chem. Eng.*, 1909, v. 9, p. 192.

Vigreux, Henri, describes and illustrates an apparatus for the estimation of ammonia; also an apparatus for the estimation of alcohol in wines.—*Bull. Soc. chim., Par.*, 1909, v. 5, pp. 574–578.

Job and Clarens present an illustrated note on a simplified type of ureometer of constant volume.—*J. d. pharm. et d. chim., Par.*, 1909, v. 30, pp. 97–100.

Stoltzenberg, H., describes and illustrates a simple spiral potash apparatus.—*Chem. Ztg.*, Cöthen, 1909, v. 33, p. 1204.

An unsigned article describes and illustrates an automatic shaking machine.—*Chem. Eng.*, 1909, v. 9, p. 39.

Binder, O., describes and figures an automatic sampling and mixing apparatus for laboratory purposes.—*Ztschr. f. anal. Chem., Wiesb.*, 1909, v. 48, pp. 32–35.

Parker, H. G., discusses the use of the centrifuge in quantitative analysis, and presents a number of illustrations of the apparatus used by him.—*J. Am. Chem. Soc.*, 1909, v. 31, pp. 549–556.

Steiner, Otto, describes and illustrates an apparatus for the even distribution of liquids in electrolytical apparatus.—*Chem. Ztg.*, Cöthen, 1909, v. 33, pp. 74–75.

## 6. FILTERS.

Snelling, Walter O., discusses the use of the Monroe crucible, which he believes has many advantages not possessed by any other type of apparatus used for filtration.—*J. Am. Chem. Soc.*, 1909, v. 31, pp. 456–461.

Swett, Otis D., discusses solvents for use with the Monroe crucible, and presents a list of salts applied in aqueous solution; also a list of solvents for precipitates in condition for weighing.—*Ibid.*, pp. 928–932.

de Vries, H. J. F., describes a porcelain, Gooch crucible with platinum filter holder.—*Chem. Weekblad*, 1909, v. 6, pp. 816–818.

Richards, Theodore William, describes and illustrates a modified form of Gooch crucible, which consists in welding to the crucible a flaring brim, which may be as wide as is desired, but usually need not exceed 15 mm. in width, thus doubling the total diameter of the top of the crucible.—*J. Am. Chem. Soc.*, 1909, v. 31, p. 1146.

Brunck, O., describes and illustrates a modification of the Gooch crucible.—*Chem. Ztg.*, Cöthen, 1909, v. 33, p. 649.

Kober, Philip Adolph, outlines a method for the preparation of asbestos for Gooch crucibles, and points out some of the possible uses of asbestos so prepared.—*Am. Chem. J.*, 1909, v. 41, pp. 430–432.

Murmann, Ernst, in discussing the desirability of having closer fitting lids for Gooch or other crucibles, recommends the use of carborundum for grinding the upper rough edges of the crucible.—*Oesterr. Chem. Ztg.*, Wien, 1909, v. 12, p. 145.

De Koninck, L. L., presents some observations on the preservation of filter papers and the possible influence on certain analyses.—*Bull. Soc. chim. Belg.*, 1909, v. 23, pp. 221–222.

Eisenstein and Ziffer describe and illustrate an apparatus for filtering at constant temperature.—*Chem. Ztg.*, Cöthen, 1909, v. 33, p. 1330.

Fitzgerald, W. P., describes and illustrates a constant-level reservoir for supplying to the funnel new liquids as fast as the filtration takes place.—*J. Am. Chem. Soc.*, 1909, v. 31, pp. 839–840. See also *Chem. Eng.*, 1909, v. 10, p. 94.

Bailey, H. S., describes and illustrates an automatic filter funnel.—*J. Am. Chem. Soc.*, 1909, v. 31, p. 1144.

Bornett, S., describes and figures a pressure filter for the laboratory.—*Ztschr. f. ang. Chem.*, 1909, v. 22, pp. 261–262.

Hudig, J., describes an apparatus for decanting and filtering supernatant liquids.—*Chem. Weekblad*, 1909, v. 6, pp. 88–91.

Richter, Ernst, describes and illustrates a funnel, to be used as an inverted strainer, having an edge specially designed for fastening sev-

eral layers of gauze, muslin, or other material to be used as the strainer.—Apoth. Ztg., Berl., 1909, v. 24, p. 871.

An unsigned article describes and illustrates a simple funnel holder for filtering into wide-mouthed receptacles of any variety without the use of a standard.—Am. Druggist, N. Y., v. 55, p. 370.

An unsigned article discusses filtration and other processes of separation, and illustrates various forms of funnels arranged for continuous filtration, or for filtration of particular substances under varying conditions.—Pharm. J., Lond., 1909, v. 28 (82), pp. 677–683.

An unsigned article, in discussing separation, defines filtration, and outlines methods for filtering with various media.—Southern Pharm. J., 1908–9, v. 1, pp. 544–547, 604–605.

Bechstein, O., describes kieselguhr, or infusorial earth, and discusses some of its many and varied uses.—Sc. Am. Suppl., 1909, v. 68, p. 119.

An abstract points out that in Europe, especially in Germany, infusorial earth has found extended application, and outlines the method of preparing this material.—Chem. Eng., 1909, v. 10, p. 201.

Lyons, A. B., discusses the capacity of filters and funnels, and outlines a ready method whereby the relative capacity of funnels may be estimated.—Drug Topics, New York, 1909, v. 24, p. 2.

#### 7. COLOR STANDARDS AND COLORS.

Günther, T., describes and illustrates a stand for Hehner's colorimeter.—Chem. Ztg., Cöthen, 1909, v. 33, pp. 318–319.

Lovibond, Joseph W., discusses some requirements of a color standard, and points out that color standards must be available for use under ordinary daylight conditions, and for determining the color of liquids, solids, or gases they may be either fixed points or scales, but scales have a much wider range of application.—J. Soc. Chem. Ind., 1909, v. 28, pp. 500–502. See also Pharm. J., Lond., 1909, v. 28 (82), p. 364.

An unsigned abstract (*L'Industrie moderne*) presents a table showing the apparent change in color caused by artificial light.—Pharm. Zentralh., 1909, v. 50, p. 596.

Beringer, George M., reports that in order to overcome the varying colors of preparations as made by different pharmacists at different places, it has been proposed to introduce a color scheme with a notation to each preparation as to its proper shade of color, so that the pharmacist can reproduce the same in his preparations.—Proc. New Jersey Pharm. Ass., 1909, p. 113.

Posey, H. G., asserts that he is not enthusiastic over the proposed addition of color standards to the National Formulary. The small pharmacist will never equip himself with the plain color chart and

the busy pharmacist will most probably, for lack of time, neglect to compare his preparation with the specified color.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 981.

#### 8. ANALYTICAL METHODS AND RESULTS.

Fresenius, Th. Wilhelm, outlines principles for the requirements to be made by the analytical chemist in connection with substances submitted to him.—Proc. VIIth Internat. Congress App. Chem., Sec. I, Anal. Chem., 1909, Lond., 1910, pp. 9–10.

Bray, William C., outlines a system of qualitative analysis for the common elements.—J. Am. Chem. Soc., 1909, v. 31, pp. 611–637.

Fresenius, W., discusses the underlying principles for conducting systematic analytical examinations.—Ztschr. f. ang. Chem., 1909, v. 22, pp. 577–580.

Pozzi-Escot, Emm., outlines a novel method for the qualitative and quantitative analytic separation of metallic bases.—Bull. Soc. chim., Par., 1909, v. 5, pp. 94–104.

Smith, Warren Rufus, presents a note on the quantitative determination of a dissolved substance in the presence of suspended material.—J. Am. Chem. Soc., 1909, v. 31, pp. 935–937.

Richardson, W. D., discusses standard methods for analysis and the efforts that are being made by various commercial concerns for improving methods for the analysis of various materials.—J. Ind. Eng. Chem., 1909, v. 1, p. 5.

Ebaugh, W. C., discusses the use of standardized samples as a check upon different chemists using the same method of analysis, and upon the same chemist using different methods of analysis.—*Ibid.*, pp. 62–63.

Murray, B. L., points out that the Pharmacopœia freely gives tests for chlorides, sulphates, phosphates, iron, or most any of the samples as required; the appropriate qualitative test is given; but when it is required to employ a more important test, such as a quantitative assay method, the Pharmacopœia frequently gives no such test at all.—*Ibid.*, p. 775.

Coblentz, Virgil, is reported as pointing out the necessity of having standard methods given in detail, since analytical results are so dependent upon the method employed and the chemist himself.—Merck's Rep., 1909, v. 18, p. 336.

Gordin, H. M., points out that the Pharmacopœia is not intended to be a treatise on analytical or descriptive chemistry, and asserts that one who has not studied chemistry will not learn the science from the Pharmacopœia, and one who has studied the science does not need to be informed about many points minutely described in the Pharmacopœia. He advocates the omission of many of the common tests.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 90.

Clark, A. H., points out that since the Pharmacopœia is now the legal standard, it is necessary, for legal purposes, that the tests should be stated completely and quite minutely.—*Ibid.*, p. 90.

Murray, B. L., suggests that the U. S. P., instead of including in the book itself methods of analysis, adopt the methods advised by the American Chemical Society.—*J. Ind. Eng. Chem.*, 1909, v. 1, p. 776.

An unsigned article reviews the chemical tests and the methods of applying them as directed in the Ph. Hung. III.—*Ztschr. d. allg. österr. Apoth.-Ver.*, Wien, 1909, v. 47, pp. 556, 584.

Düsterbehn points out that the Ph. Fr. V devotes considerable attention to analytical methods and even requires the use of polarizing apparatus and the microscope.—*Apoth. Ztg.*, Berl., 1909., v. 24, p. 273.

Moerk, Frank X., comments on the gravimetric determinations of the U. S. P. VIII. He also discusses the volumetric determinations, and points out that as 0.05 cc. V. S. in U. S. P. assays usually means a difference of 0.2 to 0.3 per cent in the purity of the substance, some little allowance should be made, especially as there are requirements like 99.5 per cent, 99.8 per cent, and even 99.9 per cent.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 919-934.

Coblentz, Virgil, points out that volumetric processes are recommended on account of their convenience and because the use of an analytical balance is not demanded.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 494.

Schulz, Ferdinand, recommends the use of a short piece of glass tubing in liquids to be titrated to facilitate the mixing of the liquids and prevent overtitration.—*Chem. Ztg.*, Cöthen, 1909, v. 33, p. 1187.

Decantation is discussed in a "Chapter in practical pharmacy," with illustrations showing ordinary forms of siphons and a practical modification for washing precipitates.—*Pharm. J.*, Lond., 1909, v. 28 (82), pp. 327-328.

Pickering, Spencer Umfreville, reports observations on the hydration of precipitates.—*J. Chem. Soc.*, Lond., 1909, v. 95, pp. 123-128.

Czerkis, Max, presents a comprehensive review of the processes of oxidation as they occur in nature and in the laboratory.—*Pharm. Post*, Wien, 1909, v. 42, pp. 101-102; 109-111.

Walker and Blackadder discuss combustion analysis, and describe and illustrate an apparatus used by them for the elementary examination of organic compounds by combustion in oxygen.—*Chem. News*, Lond., 1909, v. 99, pp. 5-6.

Suto, Kenzo, presents a contribution on the elementary analysis of organic substances, and describes and figures the apparatus used.—*Ztschr. f. anal. Chem.*, Wiesb., 1909, v. 48, pp. 1-17.

Richards and Mathews present a further note concerning the efficiency of fractional distillation by heat generated electrically.—*J. Am. Chem. Soc.*, 1909, v. 31, pp. 1200–1202.

Lewis, Warren K., discusses the theory of fractional distillation.—*J. Ind. Eng. Chem.*, 1909, v. 1, pp. 522–533.

Sadtler, P. B., discusses the theories of vacuum evaporation.—*Chem. Eng.*, 1909, v. 10, pp. 156–160.

Sadtler, S. S., reports various methods of avoiding emulsions in organic analysis.—*J. Ind. Eng. Chem.*, 1909, v. 1, pp. 479–480.

Schoorl, N., presents a contribution to the microchemical analysis of insoluble substances, and outlines a method for determining the nature of the substances.—*Ztschr. f. anal. Chem.*, Wiesb., 1909, v. 48, pp. 665–678.

See also pp. 401–415, for methods for the microchemical determination of elements belonging to the alkali earth group (barium, strontium, calcium).

Driessen, Felix, presents some abstracts from an address on electroanalysis.—*Chem. Weekblad*, 1909, v. 6, pp. 140–142.

Alders and Stähler report observations on rapid electroanalytic precipitations and separations.—*Ber. d. deutsch. chem. Gesellsch., Berl.*, 1909, v. 42, pp. 2685–2695.

Stähler, A., reviews the work done up to April, 1909, in connection with electroanalysis, and calls attention to some of the apparatus used and the modifications of methods proposed.—*Fortschr. d. Chem.*, 1909, v. 1, pp. 124–133.

Grossmann and Stern review the advance in analytical chemistry from October, 1908, to April, 1909.—*Ibid.*, pp. 134–145. See also pp. 199–206.

#### 9. CHEMICAL CONSTANTS.

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Levi and Manuel discuss the determination of the iodine number of oils and point out that in place of the expensive and readily decomposed chloroform it is feasible to use other solvents, such as

carbon tetrachloride and pentachlorethane.—Chem. Repert., Cöthen, 1909, v. 33, p. 190.

Remington and Lancaster report on the comparative examination of the halogen absorption of oils by the methods of Hübl, Wijs, Hanus, and McIlheney.—Year-Book of Pharmacy, Lond., 1909, pp. 337–343. See also Chem. & Drug., Lond., 1909, v. 75, p. 230.

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Beringer, George M., points out that there is a lack of harmony in the official directions for testing many chemicals for impurities and in determining the per cent of pure salt present. This could be largely obviated if the commonly applied tests and methods of assay were classified and official directions for applying these given, and then a uniform proportion of the article to be tested prescribed.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 799.

Beal, J. H., points out that one party would make chemical tests and assays so scientific, complete, and exact that there will be no possibility of impeaching them in prosecutions under the State and Federal food and drugs laws, while another party would eliminate all tests and assays except such as can be accurately applied by an average druggist with the appliances and resources of an average drug store.—Midl. Drug., 1909, v. 43, p. 605.

Wilbert, M. I., thinks it would be advisable to restrict the official tests, as has been done in the Swiss and other foreign pharmacopœias, to such as can, should, and must be applied by the pharmacist, to insure the identity and purity of the materials he supplies.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 671.

Coblentz, Virgil, thinks that in making changes in tests it is absolutely necessary to be conservative and to know the commercial and practical factors to be considered. The proportion of chemicals used in medicine is very small compared with the total amount used in the arts.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 494.

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Rothmund and Burgstaller discuss the reliability of chlorine determinations according to Volhard. They conclude that by the use of Volhard's method exact results are obtained, with filtration only in cases where a comparatively large amount of chlorine is present in rather condensed solution.—*Ztschr. f. anorg. Chem.*, 1909, v. 63, pp. 330–336.

Guthrie and Falco outline a method for the estimation of chlorine in the presence of palladium, and discuss the quantitative determination of palladium by reduction with alcohol in alkaline solution.—*Ztschr. f. anal. Chem.*, Wiesb., 1909, v. 48, pp. 555–559.

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limit of delicacy for the biuret reaction in a watery solution of albumen is 0.0004 per cent, or 4 parts of albumen in 1,000,000 parts of distilled water, while the limit of delicacy for the cold nitric-acid test in a watery solution of albumen is 0.00006 per cent, or 6 parts of albumen in 10,000,000 parts of distilled water.—*Biochem. J.*, Liverpool, 1909, v. 4, pp. 127–135.

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Pels, I. R., contributes a note on the Benedict method of quantitative estimations of sugar in the urine.—*Med. Rec.*, N. Y., 1909, v. 75, p. 848.

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Quinan, Clarence, describes and illustrates a modification of Lunge's method for the quantitative estimation of urea.—*J. Biol. Chem.*, 1909, v. 6, pp. 173-179.

Haesler, F., discusses the quantitative estimation of urea in watery solutions, in urine, and other secretions and excretions.—*Chem. Ztg.*, Cöthen, 1909, v. 33, p. 110.

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Mathison, G. C., describes a simple method of estimating ammonia in the urine, suitable for clinical purposes, depending on the reaction that takes place when a solution of an ammonium salt is treated with formaldehyde.—*Brit. M. J.*, 1909, v. 1, p. 715.

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Chapus, A., discusses the analysis and estimation of fatty matters in fæces.—*J. d. pharm. et d. chim.*, Par., 1909, v. 30, pp. 301-304.

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Enriquez, Ambard, and Binet (*Sem. Méd. Par.*, 1909, v. 29, no. 2) describe a method by which it is possible to measure the amount of amylase in the fæces and thus to obtain insight into the functioning of the pancreas. Details of the technique, worked out from research on 150 individuals, are given in the abstract.—*J. Am. M. Ass.*, 1909, v. 52, p. 598.

Brown, Philip King, contributes a note on the bacterial examination of the stools in suspected cancer of the stomach.—*Ibid.*, 1909, v. 53, p. 1525.

#### GASTRIC CONTENTS.

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Weinstein, J. W., discusses, with several illustrations, the macroscopic and microscopic appearance of stomach contents.—*Ibid.*, p. 1710.

Graham and Guthrie discuss the value of the test meal in gastric diagnosis, with tabulated summaries of 625 cases.—*N. York M. J.*, 1909, v. 90, pp. 433-435.

Friedman, J. C., presents a modification of the Sahli butyrometric test meal; it has the advantage over the Ewald and Riegel meals in that the conditions of most of the gastric functions may be determined by a single aspiration. Its advantages over the Sahli meal are its constancy of composition, the ease with which it may be prepared and administered, its strong secretory stimulating powers, and the stability of the emulsion.—*Arch. Int. M.*, 1909, v. 4, pp. 69-80.

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Bassler, Anthony, describes and figures an apparatus for chemical and bacteriological examination of gastric contents and feces.—*N. York M. J.*, 1909, v. 90, pp. 545-547.

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King, Roscoe W., discusses the guaiac test for blood and comments on the work of Whitney.—*Ibid.*, 1909, v. 161, p. 20.

White, Franklin W., makes a comparison of the guaiac and ben-zidin tests for invisible hæmorrhage in diseases of the digestive organs, and draws a number of conclusions.—*Ibid.*, v. 160, pp. 733-743.

Slowzow, B. J., discusses the detection of blood by means of the reaction described by Deleard-Benoit, and presents a table showing the comparative sensitiveness of the several available reactions for blood.—Pharm. Ztg., Berl., 1909, v. 54, p. 632.

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Coons and Bratton discuss the prognostic and diagnostic value of the leucocytes and differential count in acute abdominal infection (appendix).—N. York M. J., 1909, v. 90, pp. 205-209.

See also Wile, Ira S., Blood examinations in the presence of gangrene. (*Ibid.*, pp. 498-500.)

Fest and Hoag describe a method of counting bacteria in the blood.—J. Am. M. Ass., 1909, v. 53, p. 1487.

Welsh, Chapman, and Storey discuss some applications of the precipitin reaction in the diagnosis of hydatid disease. In the conditions described they consider that a negative reaction is inconclusive, but a positive reaction is conclusive of hydatid invasion, and the latter may be obtained in circumstances of clinical importance.—Lancet, 1909, v. 176, pp. 1103-1105.

Schroeder and Cotton fail to confirm the results of Rosenberger, in the matter of finding tubercle bacilli in the blood of tuberculous cattle.—Arch. Int. M., 1909, v. 4, pp. 133-149.

Sawyer, Wilbur A., reports similar failure.—*Ibid.*, pp. 628-638.

Brem, Walter V., contributes a note on the investigation of blood for tubercle bacilli, in which he calls attention to the contamination of distilled water with acid-fast organisms as a source of error. He asserts that there is as yet no conclusive proof of the frequent continued presence of tubercle bacilli in the circulating blood.—J. Am. M. Ass., 1909, v. 53, pp. 909-911. See also editorial p. 956.

Epstein and Ottenberg describe and figure a method for hæmolysis and agglutination tests, using glass tubing drawn out to capillary points.—Arch. Int. M., 1909, v. 3, pp. 286-288.

Lyons, Randolph, discusses the clot culture in conjunction with the agglutination test in typhoid; by combining this method with the Widal the chances of an early diagnosis are almost doubled; paratyphoid infection may be early recognized. Fornet's method has many of the advantages of that of Müller and Gräf, with none of the objections to the latter.—*Ibid.*, 1909, v. 4, pp. 64-68.

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Fisher, Jessie Weston, contributes a note on the staining of blood films, a modification of Jenner's stain.—Med. Rec., N. Y., 1909, v. 76, p. 564.

Hayhurst, Emery R., presents a satisfactory method for staining blood smears—a modified Jenner-Romanowski (polychrome eosin-methylene blue), commonly called Skelton's stain.—J. Am. M. Ass., 1909, v. 52, pp. 1100-1102.

King, Roscoe W., publishes a working formula for a simple method for preparing a useful stain, methylene blue, a modified Romanowski staining fluid.—Med. Rec., N. Y., 1909, v. 76, p. 103. See also *ibid.*, p. 733.

Cook, Jerome E., presents a brief note on a simple stain for blood smears (Tiedemann) with a description of his technique.—J. Am. M. Ass., 1909, v. 52, p. 1492.

Peebles and Harlow call attention to some of the chemistry of the methyl alcohol stains in common use for the staining of blood, and point out the practical value of the study to the general practitioner who makes his own blood examinations.—*Ibid.*, p. 768.

#### 5. BIOLOGIC PRODUCTS AND METHODS.

Bettink, H. Wefers, reviews some of the history of the use of biological products in medicine.—Pharm. Weekblad., 1909, v. 46, pp. 249-259.

Mayo, Caswell A., points out that the Ph. Fr. V devotes eight pages to physiological preparations, and describes in detail the making of extracts of organs for hypodermic injection by maceration, also the requirements in connection with medicinal serums.—*Am. Druggist*, N. Y., 1909, v. 54, p. 232.

Chevalier makes a communication to the Therapeutic Society on the preparation and standardization of opotherapeutic products, emphasizing the precautions to be observed.—*J. d. pharm. et d. chim., Par.*, 1909, v. 29, p. 80.

Vialard discussed before the Therapeutic Society opotherapy and renal impermeability.

Renan indicates a new method of administration of the kidney maceration in renal impermeability of toxæmic origin.—*Ibid.*, p. 129.

Bell, W. Blair, discusses the pituitary body and the therapeutic value of the infundibular extract in shock, uterine atony, and intestinal paresis.—*Brit. M. J.*, 1909, v. 2, pp. 1609-1613.

Choay, E., presents a paper on the extracts of autolysed organs. He concludes that in view of the hæmolytic properties of autolysed organs, it is indispensable to procure, exclusively, opotherapeutic extracts obtained by immediate desiccation, in the cold and in vacuum, of freshly collected organs.—*J. d. pharm. et d. chim., Par.*, 1909, v. 30, pp. 398-404, 433, 444.

Rosenthal and Chazarain-Wetzel present a preliminary note on the employment of the lactic ferments in the treatment of surgical infections of the urinary passages, and particularly the bladder.—*Ibid.*, p. 232.

North, Charles E., reviews 300 cases treated with a culture of lactic acid bacteria.—*Med. Rec.*, N. Y., 1909, v. 75, pp. 505-514.

Goodale, J. L., contributes a note on the treatment of chronic suppurative nasal conditions by the use of lactic acid bacteria, with a report of a number of cases.—*Boston M. & S. J.*, 1909, v. 161, p. 83.

Benham, C. H., reports further researches into the bacteriology and vaccine therapy of common colds.—*Brit. M. J.*, 1909, v. 2, pp. 1338-1342.

Mallanah, S., reports seven cases of suppuration successfully treated by vaccines.—*Ibid.*, p. 934.

Fleming, Alexander, presents a brief note on the bacteriology and vaccine treatment of acne vulgaris.—*Ibid.*, p. 533.

Groves, Ernest Hey, reports a case of *Bacillus pyocyaneus* pyæmia successfully treated by vaccine.—*Ibid.*, 1909, v. 1, p. 1169.

Calwell, W., protests against the term "anaphylaxis," especially in connection with the term "prophylaxis."—*Ibid.*, p. 1037. See also *Ibid.*, p. 1093.

For additional references, see under Opsonins and sera; also Index Medicus and J. Am. M. Ass.



## 1. ENZYMES.

Mossler, Gustav, discusses the several ferments, their occurrence in nature, and their probable use to plant and animal life.—*Ztschr. d. allg. österr. Apoth.-Ver.*, Wien, 1909, v. 47, pp. 93-95, 105-107, 117-119.

Brown, Edward J., in a discussion on the history of enzymes, points out that enzymes were first spoken of in the beginning of the fifteenth century, none of the writers, however, giving any idea as to what was understood by the term. A gradual advance was made from that time, which eventually led to the discovery of the true nature of yeast by Pasteur, and it was during the heat of controversy between Liebig and Pasteur that a series of discoveries was made which threw a new light on the subject, namely, the isolation of nonliving substances capable of setting up fermentation, the first being diastase, the existence of pepsin in the gastric juice being demonstrated about the same time.—*Pharm. J.*, Lond., 1909, v. 29 (83), pp. 575-576.

Kwisda, A., discusses the occurrence of several antiferments and reviews some of the recent literature on the subject.—*Ztschr. d. allg. österr. Apoth.-Ver.*, Wien, 1909, v. 47, pp. 145-146.

Dohme and Engelhardt recommend that the Pharmacopœia give an assay process for amylopsin; they came across samples that were absolutely deficient in amyloptic power.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 713.

Pearson, W. A., examined several vegetable diastases. One seemed labeled more active than results indicated, but this was found to be due to the modification of the method used by the manufacturer in testing this product.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 179.

Vanderkleed, C. E., thinks that the new Committee on Standards for Nonofficial Drugs and Chemical Products should adopt a standard method for testing diastase.—*Ibid.*, p. 123.

Merck, E. (Darmstadt) criticizes the Ph. Fr. V requirement that diastase be absolutely free from starch; this he thinks it is impossible to produce. The test for starch is superfluous if the diastase be of sufficient saccharifying power.—*Bull. sc. pharmacol.*, Par., 1909, v. 16, p. 248.

Mossler, Gustav, reviews the history of diastase, its occurrence in nature, and its production in a commercial way.—*Ztschr. d. allg. österr. Apoth.-Ver.*, Wien, 1909, v. 47, p. 94.

Büchner, E. D., discusses the use of yeast juice and the possibilities of fermentation apart from the growth of yeast cells.—*Oesterr. Chem. Ztg.*, Wien, 1909, v. 12, pp. 315-316.

An editorial (*Suedd. Apoth. Ztg.*, 1909, v. 49, pp. 441, 450) discusses enzymes and their influence on alkaloids, glucosides, and esters.

Winckel, Max, points out that the action of ferments on the glucosidal bodies plays an important rôle during the drying and storage of plants. By a preliminary heating to destroy these ferments their action is removed.—*Chem. & Drug. Lond.* 1909, v. 75, p. 638.

Harlow and Stiles present notes on the effects of shaking upon the activity of ptyalin, and conclude that while they are convinced that the removal of the enzyme by contact with surfaces has been the chief factor in their experiments, they have some reasons to believe in a secondary influence of the shaking, due either to an agglomeration or a disintegration of the molecules.—*J. Biol. Chem.*, 1909, v. 6, pp. 359–362.

See also under official titles.

A number of additional references on enzymes and the action of enzymes are included in the *Jahresb. ü. Tier-Chem.*, 1909, Wiesb., 1910, *Index Medicus*, and *J. Am. M. Ass.*

## 2. OPSONINS.

The London Correspondent (*J. Am. M. Ass.* 1909, v. 53, p. 959) states that vaccine therapy has now assumed great importance in the eyes not only of the profession but of the public. Two hospitals, St. Mary's and Mount Vernon Hospital for Consumption, have issued appeals for special funds for its study and practice. At the former hospital the work is under the direction of Almroth Wright, and in the latter under R. W. Allen.

Seufert, Edward C., discusses the vaccine treatment of disease with opsonic control.—*Therap. Gaz.*, 1909, v. 33, pp. 858–863.

Lüthje, H., presents some observations on the significance of opsonins, especially in the diagnosis and treatment of tuberculosis.—*Therap. Monatsh.*, Berl., 1909, v. 23, pp. 12–17.

Walters, F. Rufenacht, contributes a paper on the technique of the opsonic test.—*Lancet*, 1909, v. 177, pp. 6–8.

Strubell and Felber (*Berl. klin. Wchnschr.*, 1909, v. 46, no. 32) discuss the sources of error in determining the opsonic index.—*J. Am. M. Ass.*, 1909, v. 53, p. 981.

Gildersleeve, N., discusses the present status of the opsonic theory and bacterial therapy. He thinks the practice should be left in skilled hands until definite rules can be laid down for the use of vaccines, so that the practitioner can control the inoculations by clinical manifestations.—*Ibid.*, v. 52, p. 252.

An editorial (*Lancet*, 1909, v. 176, p. 1057) discusses the question of immunity and immunization.

An editorial (*N. York M. J.*, 1909, v. 89, p. 445) discusses some problems in immunity, with special reference to the recent work of Hiss and Zinsser.

Richardson, Mark W., reviews some of the recent literature on vaccine therapy, and discusses the general principles involved.—*Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, pp. 94–100.

Hektoen, Weaver, and Tunnicliff present a preliminary report of investigations of serums and vaccines for streptococcus, staphylococcus, and pneumococcus infections.—*Ibid.*, pp. 101–103.

Thomas, B. A., reports the results of three years' experience in bacterial immunization.—*Ibid.*, pp. 128–149.

Varney, Henry Rockwell, presents a paper on inoculations of polyvalent staphylococcic suspensions in staphylococcic infections of the skin.—*J. Am. M. Ass.*, 1909, v. 53, pp. 680–682.

Robertson, W. M., reports on the use of staphylococcus vaccine in inflammatory conditions of the genito-urinary organs, with notes of six cases.—*Ibid.*, p. 797.

Semple and Matson contribute a paper on the preparation and keeping properties of antityphoid vaccines, with numerous tables and charts. They consider pure carbolic acid, to the extent of 0.5 per cent, as the best agent with which to sterilize bacterial vaccines, and its general adoption would obviate any necessity for heating.—*Lancet*, 1909, v. 177, pp. 436–444.

A number of references on immunity, vaccination, and antibodies in the blood will be found in *Hyg. Rundschau*, pp. 1454–1458.

See also *Index Medicus* and *J. Am. M. Ass.*

### 3. DISINFECTANTS.

Dorset, M., discusses some common disinfectants, their chemistry and uses.—*Spatula*, 1908–9, v. 15, pp. 230–234.

Schryver and Lessing discuss a physicochemical method for comparing the antiseptic value of disinfectants which they believe has many advantages, notably the small amount of time involved and the simplicity of the manipulation.—*J. Soc. Chem. Ind.*, 1909, v. 28, pp. 60–65. See also *Pharm. J., Lond.*, 1909, v. 28 (82), p. 770, and *Proc. VIIth internat. Congress App. Chem., Sec. VIIa, Hygiene & Med. Chem.*, 1909, London, 1910, p. 125.

An unsigned article recounts the work of Schryver and Lessing, with a brief outline of the discussion thereon.—*Brit. M. J.*, 1909, v. 1, p. 103. See also *Lancet*, 1909, v. 176, pp. 121, 193, 414, 426.

The *Lancet* Commission reports on the standardization of disinfectants, with special reference to the disinfectant preparations commonly sold to the public.—*Lancet*, 1909, v. 177, pp. 1454–1458, 1516, 1531, 1612, 1616. See also editorial, p. 1606, and discussion, pp. 1841, 1849.

Kingzett, C. T., comments on the standardization of disinfectants in the report of the *Lancet* Commission, and asserts that the latter

furnishes ample evidence that it is impossible to standardize disinfectants as a whole by any one method.—*Brit. & Col. Drug.*, 1909, v. 56, pp. 561–562. Also *Chem. News, Lond.*, 1909, v. 100, pp. 315–316.

A news note points out that standardization of disinfectants was a subject for inquiry in the House of Commons recently, and that in answer it appears that the Local Government Board has no intention of having standards for disinfectants.—*Pharm. J., Lond.*, 1909, v. 28 (82), p. 562.

An editorial (*N. York M. J.*, 1909, v. 89, p. 127) notes that what is meant by “Rideal-Walker coefficient 16 to 17” is little understood, especially in this country, and that while the method is in many ways admirable, in practice disinfection is almost always carried out in the presence of organic matter and the results are sometimes misleading.

Christian discusses the use of the steam disinfection apparatus devised by Rubner.—*Hyg. Rundschau*, 1909, v. 19, pp. 241–251.

Bechhold, H., presents some observations on disinfection and colloid chemistry.—*Proc. VIIth Internat. Congress App. Chem., Sec. IVa 2, Physiol. Chemistry*, 1909, London, 1910, pp. 12–16.

An unsigned article calls attention to the work of Kurt Laubheimer, of the University of Giessen, on the value of different substances as disinfectants, and gives a tabulated summary of his results.—*Brit. M. J.*, 1909, v. 2, pp. 211–214.

Rideal and Orchard describe some suggested improvements in disinfectant testing.—*Proc. VIIth Internat. Congress App. Chem., Sec. VIIla, Hygiene & Med. Chem.*, 1909, London, 1910, pp. 112–119.

Blyth, M. Wynter, discusses the chemical control of disinfectants.—*Ibid.*, pp. 126–132.

The Minister of the Interior and of Agriculture, under date of March 30, 1909, issued a circular to the manufacturers of disinfectants, announcing the organization of an official service for the supervision of special products for disinfection.—*Ann. d. pharm., Louvain*, 1909, v. 15, pp. 237–239.

A number of references on disinfection and the use of various substances as disinfectants will be found in *Hyg. Rundschau*, 1909, v. 19, pp. 1445–1446. See also *Index Medicus* and *J. Am. M. Ass.*

## 6. VEGETABLE DRUGS.

Tschirch, A., discusses the word “drug” and concludes that it is of oriental origin and probably Arabic.—*Schweiz. Wehnschr. f. Chem. u. Pharm., Zürich*, 1909, v. 47, pp. 361–364. Also *Ztschr. d. allg. österr. Apoth.-Ver., Wien*, 1909, v. 47, pp. 129–130.

Lescher, F. Harwood, reviews the history of drugs and their commerce, including the caravan era, the commerce of the Middle Ages,

and the commerce of modern times.—*Pharm. J.*, Lond., 1909, v. 28 (82), pp. 461-462, 580-582.

Tunmann, O., discusses the importance of pharmacognosy for the practical work of the apothecary and the need for wider pharmacognostic training.—*Chem. Ztg.*, Cöthen, 1909, v. 33, p. 1017. Also *Ztschr. d. allg. österr. Apoth.-Ver.*, Wien, 1909, v. 47, pp. 521-522.

Hanausek, Eduard, presents a comprehensive review of the literature relating to pharmacognosy appearing in the year 1908.—*Chem. Ztg.*, Cöthen, 1909, v. 33, p. 273 ff.

Tschirch, A., discusses the problems and objects of modern pharmacognosy and points out the importance of applied pharmacognosy to pharmacists.—*Schweiz. Wchnschr. d. Chem. u. Pharm.*, Zürich, 1909, v. 47, pp. 109-118. Also *Am. Druggist*, N. Y., 1909, v. 55, pp. 277-279.

A book review calls attention to the third edition of a Textbook of Botany and Pharmacognosy by H. Kraemer.—*Bot. Centralbl.*, 1909, v. 110, p. 433.

Mitlacher, W., reviews one of the recent parts of the Hand Book of Pharmacognosy by A. Tschirch.—*Ztschr. d. allg. österr. Apoth.-Ver.*, Wien, 1909, v. 47, p. 538. See also *Bot. Centralbl.*, 1909, v. 110, pp. 159-160.

Holm, Theo., presents a number of botanical and morphological descriptions, profusely illustrated, of North American medicinal plants.—*Merck's Rep.*, N. Y., 1909, v. 18.

Beringer, George M., calls attention to a number of innovations in the official definition of drugs recently suggested by him.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 811.

Raubenheimer, Otto, discusses the origin of compressed herbs, and deplores the fact that pharmacists have indorsed this style of package and have thereby lost the opportunity of becoming themselves thoroughly familiar with the general characteristics of crude drugs.—*D.-A. Apoth. Ztg.*, N. Y., 1909-10, v. 30 p. 109.

La Pierre, E. H., presents a brief paper on "Powdered, percolation or crude drugs, which?" He deplores the lack of uniformity in galenical preparations and attributes it to lack of care in the selection of crude materials.—*Proc. Massachusetts Pharm. Ass.*, 1909, pp. 125-126. Also *Apothecary*, 1909, v. 21, July, p. 16.

Rusby, H. H., points out that the omission of the enumeration of the preparations of a drug from its description has excited nothing but adverse criticism, and they should certainly be restored.—*Midl. Drug.*, 1909, v. 43, p. 687. Also *Pharm. Era*, 1909, v. 42, p. 632.

Hoover, Geo. W., describes the supervision that is accorded to the importation of drugs at the present time.—*Am. J. Pharm.*, Phila., 1909, v. 81, pp. 336-342.

Wiley, H. W., reports that 705 of the 1,220 samples of imported drugs analyzed in the drug laboratory of the Bureau of Chemistry

were found to be illegal. The character of the violations is very largely the same as found in connection with domestic drugs, namely, false claims and misrepresentations.—Ann. Rep. U. S. Dept. Agric. for 1909, 1910, p. 450.

An article by H. H. Rusby on the crude and powdered drugs at the port of New York during the year 1907-8 is reprinted.—Am. J. Pharm., Phila., 1909, v. 81, pp. 231-246.

An editorial (Drug. Circ., N. Y., 1909, v. 53, p. 2) comments facetiously on the plea of importers to be allowed to bring in low-grade drugs.

Marris, G. W., points out that, with regard to the commoner drugs, adulteration to be profitable at all to its perpetrators must be practiced in appreciable quantity, because the cost of grinding, carriage, and mixing will often bring the cost of the adulterant perilously near that of the drug itself.—*Ibid.*, p. 337.

The board of control of the N. W. D. A. offers in the form of a resolution the recommendation of the committee on standards and tests of the U. S. P. and N. F., that standards for drugs of vegetable origin be based only on fair average qualities and formulas for preparations be adjusted to the same.—Proc. N. W. D. A., 1909, p. 295. See also pp. 89 and 162.

Rusby, H. H., asserts that justice has miscarried because of the looseness of pharmacopœial definitions. He points out that such statements as "and other species," "and some species," "and closely allied species" merely open the door to unprofitable disputes and failures in deciding.—Pharm. Era, 1909, v. 42, p. 632. Also Midl. Drug., 1909, v. 43, p. 686.

Main, Thos. F., commenting on the standards embodied in the U. S. P., points out that these are based on the very best samples of drugs obtained by colleges of pharmacy from the wholesale trade. The result is that these samples, in a good many cases, assay a good deal better than the average run would do.—Proc. N. W. D. A., 1909, p. 299.

Kraemer, Henry, is reported as having said that a number of features pertaining to the vegetable drugs of the Pharmacopœia were not approved by him, and that he felt that greater publicity was imperative to afford protection to the interests concerned, and to the members of the revision committee as well.—Am. J. Pharm., Phila., 1909, v. 81, p. 594.

Beringer, George M., points out that the statement (U. S. P. VIII, p. xli) "that in many cases Engler and Prantl have been followed as authorities" is misleading and is open to misconstruction.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 794.

Rusby, H. H., thinks it would be desirable to provide reasonable limitations for starch in nonstarchy drugs. He also thinks that the

presence of woody tissue in nonwoody drugs should be limited, and that extraction constants and limits for ash should be incorporated in the official requirements.—*Midl. Drug.*, 1909, v. 43, p. 686. Also *Pharm. Era*, 1909, v. 42, p. 632.

Day, W. B., suggests that crude drugs of doubtful value which are now official could be relegated to a secondary list, which might be provided for in the National Formulary.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 30.

Flemer, Lewis, thinks that all drugs used in the National Formulary formulas should be incorporated in the Pharmacopœia of the United States, so as to provide standards and methods for identification.—*Apothecary*, 1909, v. 21, June, p. 29. Also *Western Druggist*, Chicago, 1909, v. 31, p. 338.

Bruder, Otto E., recommends that articles used in the making of National Formulary preparations and which are not described in the Pharmacopœia have descriptions and tests for purity included in the National Formulary.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 965.

Posey, H. G., thinks that the introduction of concise descriptions of definitions and tests of identity, of strength and purity, of articles in the National Formulary, for which there is no standard either in the U. S. P. or other recognized work, would be highly desirable.—*Ibid.*, p. 981.

Weigel, G., in a discussion of the Ph. Fr. V, points out that the number of drugs official in this pharmacopœia is very great. He enumerates many of the official drugs that are no longer used by physicians, and are but infrequently called for by the laity.—*Pharm. Zentralh.*, 1909, v. 50, p. 282.

Wilbert, M. I., points out that the Seventh International Congress of Applied Chemistry appointed a provisional committee to inquire into the practicability of securing (1) greater uniformity in the commercial supplies of potent drugs, and (2) approximation in the pharmacopœias of the world to common standards of activity.—*Am. J. Pharm.*, Phila., 1909, v. 81, p. 418.

Requirements for crude drugs as agreed to at the White Cross Congress are presented in abstract.—*Chem. & Drug.*, Lond., 1909, v. 75, p. 681.

See also Schamelhout, A.—*Bull. Soc. roy. d. pharm.*, Brux., 1909, v. 53, p. 335.

Plaut, Albert, points out that it is very difficult indeed to secure indigenous drugs of high grade. These drugs are principally collected in the South by our negro population largely by women and children, who are not very particular about the quality of the drugs they collect.—*Am. Druggist*, N. Y., 1909, v. 54, p. 98.

Main, Thos. F. (chairman), believes that much can be done in the future to raise the standard of indigenous drugs by educating the

collectors and the country storekeepers who buy from them.—*Proc. N. W. D. A.*, 1909, p. 162. See also pp. 91–92.

An editorial (*Am. Druggist*, N. Y., 1909, v. 55, p. 238) comments on the desirability of education for the cultivators of crude drugs, so as to improve the quality of the drugs marketed and prevent the extermination of many of the more valued species.

Galloway, B. T., calls attention to the drug-plant work of the Bureau of Plant Industry of the United States Department of Agriculture.—*Ann. Rep. U. S. Dept. Agric.* for 1909, 1910, pp. 279–280.

True, Rodney H., presents a discussion on the breeding of drug plants and some observations on the methods of observation now in use.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 827–830. For discussion see *ibid.*, p. 831.

Bulletin No. 139 (Bureau of Plant Industry, U. S. Department of Agriculture, 1909, pp. 59) contains detailed descriptions accompanied by numerous illustrations of American medicinal barks.

An editorial (*N. A. R. D. Notes*, v. 8, 1909, pp. 5–6) discusses the raising of drug plants, and asserts that the cultivation of medicinal plants will some day be a great industry in this country. See also *Pharm. Era*, 1909, v. 42, p. 342.

Hall, Emmett C., enumerates some of the weeds that are used in medicine and discusses their collecting and drying.—*Sc. Am. Suppl.*, 1909, v. 67, p. 223.

Schneider, Albert, presents a summary of the experiments that have been made in California in the cultivation of drugs.—*Pacific Pharmacist*, 1909–10, v. 3, pp. 189–194.

He also continues his notes on the medicinal and poisonous plants of California in the same journal.

The same author discusses the drug situation on the Pacific coast.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 739–744.

An unsigned article discusses the growing of drugs in England, and presents a number of illustrations showing the method of harvesting lavender and the distilling of essential oils.—*Am. Druggist*, N. Y., 1909, v. 54, pp. 215–216.

Holmes, E. M., comments on the cultivation of medicinal plants in Huntingdonshire.—*Pharm. J.*, Lond., 1909, v. 29 (83), p. 101.

Rosenthaler, L., enumerates the vegetable drugs indigenous to or found growing in Alsace-Lorraine.—*Apoth. Ztg.*, Berl., 1909, v. 24, pp. 316–317.

Mitlacher, Wilhelm, discusses the cultivation of medicinal plants in Austria and in Hungary, and enumerates the several plants that are now under cultivation.—*ibid.*, pp. 732–733. Also *Pharm. Post*, Wien, 1909, v. 42, pp. 781–785.

Holmes, E. M., discusses the materia medica of Perak, and calls attention to a number of Indian drugs used in Europe, and also a



number of drugs that are not met with in the European market.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 752-766.

An editorial (Chem. & Drug. Lond., 1909, v. 75, pp. 343-344) calls attention to the second report of the indigenous drugs committee of India, which comments on 12 of the more or less widely used native drugs, including *Podophyllum emodi*, *Rheum emodi* and senna leaves from *Cassia montana*.

Peckolt, Th., continues his review of the medicinal and other economic plants of Brazil. The current numbers are devoted mainly to an enumeration of the Solanaceæ found there.—Ber. d. pharm. Gesellsch., Berl., 1909, v. 19, p. 31 ff.

Hartwich, C., describes a collection of Bolivian drugs, and comments at length on many of the samples contained therein.—Schweiz. Wchnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, p. 125 ff.

Tunmann, Otto, presents a pharmacographic description of Asia Minor, and calls attention to some of the drugs that are produced in that district.—Pharm. Ztg., Berl., 1909, v. 54, pp. 11-12.

Buysman, M., continues his discussion of the drugs of Java.—Apoth. Ztg., Berl., 1909, v. 24, pp. 43-44.

Badermann, G., presents a discussion of the cultivation of official drugs in the German colonies.—Pharm. Prax., 1909, v. 8, pp. 393-398.

Schneider, Albert, presents a number of notes on the Chinese materia medica of San Francisco.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 852-858.

Clark, A. H., expresses the belief that provision should be made by means of which crude drugs which fall short in alkaloidal requirements of the Pharmacopœia, might be used for extraction of alkaloids or for manufacture in such forms that their preparations might afterwards be brought up to the required standard.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 60.

Beckmann, Ernst, discusses the valuation of drugs by a cryoscopic method and points out that the increasing use of powdered drugs necessitates the introduction of new methods for determining their purity and activity.—Arch. d. Pharm., 1909, v. 247, pp. 110-120.

Chevalier, J., presents certain considerations on the causes which may influence the active principle content of medicinal plants.—Bull. sc. pharmacol., Par., 1909, v. 16, pp. 390-392.

MacEwan and Forrester discuss some of the variations occurring in certain narcotic drugs and propose international methods of assay.—Ztschr. d. allg. österr. Apoth.-Ver., Wien, 1909, v. 47, pp. 313-315.

Herzog and Krohn discuss the chemistry of some of the drugs belonging to the natural order Umbellifera.—Pharm. Post, Wien, 1909, v. 42, pp. 793-794.

Holmes, E. M., discusses the necessity for the application of botanical knowledge to chemical investigation of plants.—Proc. VIIth Internat. Congress App. Chem., Sec. VIIIb, Pharmacy, 1909, London, 1910, pp. 22–25. Also Pharm. J., Lond., 1909, v. 28 (82), p. 769.

Wilks, Samuel, discusses the comparative action and uses of the drug and its alkaloid.—Folia Therap., Lond., 1909, v. 3, pp. 99–102.

Hague, George W., asserts that a few small pieces of sassafras bark placed in a container of crude drugs will keep out insects and is better than chloroform for this purpose.—Meyer Bros. Drug., St. Louis, 1909, v. 30, p. 39.

An editorial (Pacific Pharmacist, 1909–10, v. 3, p. 246) discusses the possibility of compensating for loss in drug activity on keeping, and suggests that drugs be required to be labeled to indicate the date of collection and the possible deterioration on keeping.

#### 1. POWDERED DRUGS.

An editorial (Pacific Pharmacist, 1909–10, v. 3, p. 181) expresses the hope that in the new edition of the U. S. P. there will be incorporated a brief and concise description of the histological characteristics of the official vegetable drugs. See also p. 403.

Rusby, H. H., thinks that the omission of the physical characteristics of powdered drugs from the Pharmacopœia can no longer be permitted, as the legal approval or rejection of powdered drugs on their microscopical examination is a matter of daily occurrence.—Midl. Drug., 1909, v. 43, p. 687. Also Pharm. Era, 1909, v. 42, p. 633.

Day, W. B., in commenting on the need for the description of drugs in the powdered form, asserts that much work has been done in this line since the last revision and it is now practicable to describe at least the more important drugs accurately and with reasonable brevity.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 30.

Hallberg, C. S. N., asserts that the question of powdered drugs and their description is a very important one.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 821.

Schneider, Albert, discusses the microscopical examination of foods, drugs, and textile fabrics, and describes and illustrates the apparatus necessary.—Merck's Rep., 1909, v. 18, pp. 167–168, 255–257.

Shenstone, J. C., describes and illustrates a microscope suitable for use in connection with the recognition of powdered drugs. He also discusses the reagents to be used and the structural characteristics most commonly found.—Chem. & Drug. Lond., 1909, v. 75, pp. 276–277, 328, 360.

Meyer, Arthur, outlines a method for the quantitative microscopic examination of plant powders.—Ztschr. f. Unters. Nahr. u. Genussm., 1909, v. 17, pp. 497–504.

A book review calls attention to the fourth and concluding volume on the microscopical analysis of drug powders by Ernst Gilg.—*Ber. d. pharm. Gesellsch., Berl.*, 1909, v. 19, p. 557.

Marris, G. W., comments on the microscopical examination of powdered drugs, and presents directions for preparing slides, mounting media, stock solutions, and chemical reagents.—*Drug. Circ., N. Y.*, 1909, v. 53, pp. 334-337.

Schneider, Albert, comments on the use of the compound microscope in the examination of drugs, spices, and foods, and presents a tabulation of materials which are especially suitable for microscopical examination as to their identity and purity or freedom from adulteration.—*Ibid.*, pp. 333-334.

Gordin, H. M., points out that as pharmacists usually buy drugs that are used for making extracts and tinctures in powdered condition, the Pharmacopœia should supply tests by which it would be possible to identify a powdered drug and detect adulterations.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 42. See also *Am. Druggist*, N. Y., 1909, v. 54, p. 37.

Kalusowski, Henry E., expresses the belief that comprehensive descriptions of powdered drugs are absolutely necessary, as pharmacists at the present time see only the powdered or comminuted drugs.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 145.

Rackwitz describes and illustrates a separatory funnel, designed to facilitate the systematic examination of powdered drugs.—*Pharm. Ztg., Berl.*, 1909, v. 54, p. 551.

Kline, C. M., points out that among the self-evident abuses that still exist in the drug trade, one of the most brazen is that evidenced by the price of powdered drugs compared with that of the whole drug, and quotes a number of specific instances.—*Proc. N. W. D. A.*, 1909, p. 122.

An editorial (*Pacific Pharmacist*, 1909-10, v. 3, pp. 449-450) points out the desirability of having the Pharmacopœia specify the exact fineness of the vegetable powders intended for percolation. Commercial drugs as they actually appear on the market are so variable in the degree of fineness that it is impossible to obtain uniform products from percolation.

Beringer, George M., asserts that as a rule the degree of comminution directed in the official formula is too fine for percolation on the more extensive scale, and the manufacturer working on larger quantities must be guided by experience and judgment in powdering his drugs.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 796.

Havenhill, L. D., thinks that the official definitions of powders should be so worded that a No. 60 powder would not also be a No. 40 as well as a No. 20 powder.—*Ibid.*, p. 797.

A committee of the Syndicat général de la Droguerie française protests against the fineness of the powders as prescribed by the Ph. Fr. V.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 289.

## 2. VALUATION OF VEGETABLE DRUGS.

Squire and Caines present some observations on the standardization of potent drugs and the need for international agreement with regard to it.—Proc. VIIth Internat. Congress App. Chem., Sec. VIIb, Pharmacy, 1909, London, 1910, pp. 79–81. See also Pharm. J., Lond., 1909, v. 28 (82), p. 769.

MacEwan and Forrester present some observations on the variations in the activity of certain toxic drugs, and call particular attention to the standards adopted by the Brussels Conference and the adherence of the recently published pharmacopœias to this standard.—Proc. VIIth Internat. Congress App. Chem., Sec. VIIb, Pharmacy, 1909, London, 1910, pp. 81–89. See also Chem. & Drug., Lond., 1909, v. 74, pp. 877–878, and J. d. pharm. d'Anvers, 1909, v. 65, pp. 473–482.

Stewart, F. E., discusses the standardization of materia medica products which, he says, embraces a much wider scope than is usually realized. He thinks the present conditions call for the establishment of a strong central committee, board of control, or bureau of materia medica, representative in character, which should have as its functions the cooperative classification and standardization of the newer materia medica.—J. Am. M. Ass., v. 52, p. 1781. Also Pharm. Era, 1909, v. 42, p. 176.

Lyons, A. B., presents a review of the progress in standardization of pharmacopœial drugs, with tables showing the assay requirements and standards of the leading pharmacopœias of the world.—Proc. VIIth Internat. Congress App. Chem., Sec. VIIb, Pharmacy, 1909, London, 1910, pp. 108–116. See also Pharm. J., Lond., 1909, v. 28 (82), p. 769.

*Table showing the standards for assayed drugs included in the more important recent pharmacopœia.*

[Based on a table of assay processes by A. B. Lyons, in Proc. VIIth Internat. Congress App. Chem. Sec. VIIb.]

| Name of drug or preparation. | Ph.<br>Austr.<br>VIII. | Ph.<br>Belg.<br>III. | Ph.<br>Fr.<br>V. | Ph.<br>Germ.<br>V. | Ph.<br>Helv.<br>IV. | Ph.<br>Japon.<br>III. | Ph.<br>Ndl.<br>IV. | U. S. P.<br>VIII. |
|------------------------------|------------------------|----------------------|------------------|--------------------|---------------------|-----------------------|--------------------|-------------------|
| Aconite.....                 |                        | 0.8                  |                  |                    | 0.8                 |                       |                    | 0.5               |
| Fl. Aconite.....             |                        |                      |                  |                    |                     |                       |                    | 0.4               |
| Tr. Aconite.....             |                        | 0.05                 | 0.05             |                    | 0.05                |                       |                    | 0.045             |
| Ext. Aconite.....            |                        |                      | 1.0              |                    |                     |                       |                    |                   |
| Arceuthobium.....            |                        |                      |                  |                    | 0.5                 |                       |                    |                   |
| Belladonna leaves.....       |                        |                      |                  | 0.3                | 0.35                |                       |                    | 0.3               |
| Ext. Belladonna.....         | 2.0                    | 1.5                  |                  | 1.5                | 1.5                 |                       | 1.15               | 1.4               |
| Fl. Belladonna.....          |                        |                      |                  |                    |                     |                       |                    | 1.4               |
| Tr. Belladonna.....          | 0.03                   |                      |                  |                    | 0.03                |                       |                    | 0.03              |
| Cantharides.....             |                        |                      | 0.4              | 0.8                | 0.8                 |                       |                    |                   |

Table showing the standards for assayed drugs included in the more important recent pharmacopœia—Continued.

| Name of drug or preparation. | Ph.<br>Austr.<br>VIII. | Ph.<br>Belg.<br>III. | Ph.<br>Fr.<br>V. | Ph.<br>Germ.<br>V. | Ph.<br>Helv.<br>IV. | Ph.<br>Japon.<br>III. | Ph.<br>Ndl.<br>IV. | U. S. P.<br>VIII. |
|------------------------------|------------------------|----------------------|------------------|--------------------|---------------------|-----------------------|--------------------|-------------------|
| Cevadilla.....               |                        |                      |                  |                    | 3.5                 |                       |                    |                   |
| Cinchona.....                | 5.0                    | 5.0                  | 5.0              | 6.5                | 6.5                 | 6.3                   | 6.0                | 5.0               |
| Ext. Cinchona.....           | 7.5                    |                      | 10.0             | 12.0               | 12.0                | 17.5                  | 15-18              |                   |
| Fl. Cinchona.....            | 4.0                    |                      |                  | 3.5                | 6.0                 |                       | 5-6                | 4.0               |
| Tr. Cinchona.....            |                        |                      |                  | 0.74               |                     | 1.2                   |                    | 0.75              |
| Tr. Cinchona co.....         |                        |                      |                  | 0.37               |                     |                       |                    |                   |
| Coca.....                    |                        |                      |                  |                    | 0.7                 |                       |                    | 0.5               |
| Fl. Coca.....                |                        |                      |                  |                    | 0.7                 |                       |                    | 0.5               |
| Cola.....                    | 1.5                    | 1.25                 | 1.25             |                    | 1.5                 |                       | 1.75               |                   |
| Ext. Cola.....               |                        |                      | 10.0             |                    |                     |                       |                    |                   |
| Fl. Cola.....                | 1.0                    |                      | 1.25             |                    | 1.5                 |                       | 1.5                |                   |
| Colchicum corm.....          |                        |                      |                  |                    |                     |                       |                    | 0.35              |
| Ex. colchicum corm.....      |                        |                      |                  |                    |                     |                       |                    | 1.40              |
| Colchicum seed.....          |                        |                      |                  |                    |                     |                       |                    | 0.45              |
| Fl. Colchicum.....           |                        |                      |                  |                    |                     |                       |                    | 0.4               |
| Tr. Colchicum.....           | 0.04                   |                      |                  |                    |                     |                       |                    | 0.04              |
| Conium.....                  |                        |                      |                  |                    |                     |                       |                    | 0.5               |
| Fl. Conium.....              |                        |                      |                  |                    |                     |                       |                    | 0.45              |
| Filix mas.....               |                        |                      |                  |                    |                     |                       |                    |                   |
| Ext. Filix mas.....          |                        |                      |                  |                    | 26-28               |                       |                    |                   |
| Gelsemium.....               |                        |                      |                  |                    | 0.25                |                       |                    |                   |
| Granatum.....                |                        |                      |                  | 0.4                | 0.5                 |                       |                    |                   |
| Fl. Granatum.....            |                        |                      |                  | 0.2                |                     |                       |                    |                   |
| Guarana.....                 |                        |                      |                  |                    | 4.0                 |                       |                    | 3.5               |
| Fl. Guarana.....             |                        |                      |                  |                    |                     |                       |                    | 3.5               |
| Hydrastis.....               |                        |                      |                  |                    | 2.0                 |                       |                    | 2.5               |
| Ext. Hydrastis.....          |                        |                      |                  | 2.5                |                     |                       |                    |                   |
| Fl. Hydrastis.....           |                        |                      | 2.0              | 2.0                | 2.0                 | 2.0                   | 2.0                | 2.0               |
| Tr. Hydrastis.....           |                        |                      |                  |                    |                     |                       |                    | 0.40              |
| Hyoscyamus.....              |                        |                      |                  | 0.07               | 0.1                 |                       |                    | 0.08              |
| Ext. Hyoscyamus.....         | 0.3                    |                      | 0.75             | 0.50               | 0.3                 | 0.75                  |                    | 0.3               |
| Fl. Hyoscyamus.....          |                        |                      |                  |                    |                     |                       |                    | 0.075             |
| Tr. Hyoscyamus.....          |                        |                      |                  |                    |                     |                       |                    | 0.0075            |
| Ipecacuanha.....             | 2.0                    | 2.0                  | 2.0              | 1.99               | 2.0                 | 2.3                   |                    | 1.75              |
| Fl. Ipecac.....              |                        |                      |                  |                    | 2.0                 |                       |                    | 1.5               |
| Tr. Ipecac.....              | 0.2                    | 0.2                  |                  | 0.194              | 0.2                 |                       |                    |                   |
| Nux Vomica.....              | 2.5                    | 2.5                  | 2-3              | 2.5                | 2.5                 | 3.0                   |                    | 1.25 str.         |
| Ext. Nux Vomica.....         | 16.0                   |                      | 16.0             | 17.0               | 16.0                | 17.0                  |                    | 5.0 str.          |
| Fl. Nux Vomica.....          |                        |                      |                  |                    |                     |                       |                    | 1.0 str.          |
| Tr. Nux Vomica.....          | 0.25                   |                      |                  | 0.25               | 0.25                | 0.25                  |                    | 0.1 str.          |
| Opium.....                   | 12.0                   |                      | 10.0             | 12.0               | 10-12               | 10-11                 |                    | 9.0               |
| Powdered Opium.....          | 10.0                   | 10.0                 | 10.0             | 10.0               | 10.0                |                       | 9.8-10.2           | 12-12.5           |
| Ext. Opium.....              | 20.0                   | 20.0                 | 20.0             | 20.0               | 20.0                |                       | 19.6-20.4          | 20.0              |
| Tr. Opium.....               | 1.0                    | 1.0                  | 1.0              | 1.0                | 1.0                 |                       | 0.95-1.05          | 1.2-1.25          |
| Tr. Opium with Saffron.....  | 1.0                    | 1.0                  |                  | 1.0                | 1.0                 |                       | 0.95-1.05          |                   |
| Tr. Opium camphorated.....   |                        | 0.05                 | 0.05             |                    | 0.05                |                       |                    |                   |
| P. Ipecac and Opium.....     |                        | 1.0                  |                  |                    |                     |                       |                    |                   |
| Physostigma.....             |                        |                      |                  |                    |                     |                       |                    | 0.15              |
| Ext. Physostigma.....        |                        |                      |                  |                    |                     |                       |                    | 2.0               |
| Tr. Physostigma.....         |                        |                      |                  |                    |                     |                       |                    | 0.01              |
| Pilocarpus.....              |                        |                      |                  |                    |                     |                       |                    | 0.5               |
| Fl. Pilocarpus.....          |                        |                      |                  |                    |                     |                       |                    | 0.4               |
| Scopola.....                 |                        |                      |                  |                    |                     |                       |                    | 0.5               |
| Ext. Scopola.....            |                        |                      |                  |                    |                     |                       |                    | 2.0               |
| Fl. Scopola.....             |                        |                      |                  |                    |                     |                       |                    | 0.5               |
| Stramonium.....              |                        |                      |                  | 0.29               |                     |                       |                    | 0.25              |
| Ext. Stramonium.....         |                        |                      |                  |                    |                     |                       |                    | 1.0               |
| Fl. Stramonium.....          |                        |                      |                  |                    |                     |                       |                    | 0.25              |
| Tr. Stramonium.....          |                        |                      |                  | 0.03               |                     |                       |                    | 0.025             |
| Veratrum.....                |                        |                      |                  | 1.0                |                     |                       |                    |                   |

Kraemer, Henry, thinks it desirable that research workers and experts in powdered drugs should cowork; lack of homogeneity might account for discordant results in assay work.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 82.

Kline, C. M., asserts that his correspondence with wholesale druggists appears to indicate that they are depending entirely too much on the Government work of supervising the quality of drugs entering

into interstate commerce, and cautions against placing too much reliance on this protection.—*Proc. N. W. D. A.*, 1909, p. 120.

An editorial (*J. Am. M. Ass.*, v. 52, p. 1931) calls attention to Bulletin 48 of the Hygienic Laboratory, by Edmunds and Hale, on the physiological standardization of digitalis, and states that the necessity for a uniform standard is great; the incorporation of such a standard in the next Pharmacopœia would seem to offer no insurmountable obstacles.

### 3. ASH DETERMINATIONS.

Peters, W., presents observations showing the amount of moisture, the amount of ash, and the color of the ash in a number of official drugs.—*Apoth. Ztg.*, Berl., 1909, v. 24, pp. 537–538. See also review by Thomann. (*Schweiz. Wchnschr. f. Chem. u. Pharm.*, Zürich, 1909, v. 47, pp. 662–663.)

Moerk, Frank X., presents a table showing the amount of fixed mineral matter or ash in drugs permitted by the U. S. P. VIII.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 923.

Rusby, H. H., points out the desirability of including limitations for the ash content of drugs.—*Pharm. Era*, 1909, v. 42, p. 632. Also *Midl. Drug.*, 1909, v. 43, p. 686.

Coblentz, Virgil, states that since the percentage content of ash is a very important factor in determining the adulteration of powdered drugs, the possible adoption of an official method for determining the contents of ash should receive careful consideration.—*Am. Druggist*, N. Y., 1909, v. 55, p. 308.

Rosengarten, George D., thinks that directions for determining the ash content and definite limits of weighable residue are necessary.—*Merck's Rep.*, 1909, v. 18, p. 336. Also *Am. Druggist*, N. Y., 1909, v. 55, p. 365.

Schaffirt, E., discusses the testing of powdered drugs for mineral contaminations and adulterations.—*Suedd. Apoth. Ztg.*, 1909, v. 49, p. 274.

Moerk, Frank X., believes that in connection with ash determinations the nature of the crucible or dish and the method used should be stated; the latter may be (1) in the absence of alkali and alkaline earths: direct ignition; (2) in the absence of alkali, but presence of alkaline earths: ignition, followed by the addition of  $(\text{NH}_4)_2\text{CO}_3$ ; (3) in presence of alkali: charring, extracting with  $\text{H}_2\text{O}$ , igniting insoluble matter, adding  $\text{H}_2\text{O}$  solution, evaporating and igniting.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 924–925.

### 4. GLUCOSIDES.

Rosenthaler and Meyer present a comprehensive contribution to our knowledge of glucoside containing extracts.—*Arch. d. Pharm.*,

1909, v. 247, pp. 28-49; *Ztschr. d. allg. österr. Apoth.-Ver.*, Wien, 1909, v. 47, pp. 257-258, 265-266, 277-279, 288-291.

Utz discusses the estimation of glucosides, bitter principles, and alkaloids by means of the Zeiss immersion refractometer.—*Chem. Ztg.*, Cöthen, v. 33, pp. 47-49.

Bourquelot, Em., reports observations on a method of studying vegetable glucosides with the aid of emulsin.—*Proc. VIIth Internat. Congress App. Chem.*, Sec. VIIIb, Pharmacy, 1909, London, 1910, pp. 121-123.

Cowley, R. C., discusses plant glucosides and their pharmaceutical signification.—*Pharm. J.*, Lond., 1909, v. 28 (82), p. 523. Also *Merck's Rep.*, 1909, v. 18, pp. 176-177.

Fischer and Raske report on the synthesis of several glucosides.—*Ber. d. deutsch. chem. Gesellsch.*, Berl., 1909, v. 42, pp. 1465-1476.

## 5. ALKALOIDS.

Wilbert, M. I., points out that the variations of official titles in connection with alkaloids well illustrates how recent committees of revision have neglected an opportunity to promote international unification of medicinal substances and have thus signally failed to keep the *Pharmacopœia* fully in touch with advances in other branches of the science of medicine.—*Merck's Rep.*, 1909, v. 18, p. 207. Also *Western Druggist*, Chicago, 1909, v. 31, p. 397.

An editorial (*Western Druggist*, Chicago, 1909, v. 31, p. 729) asserts that the blunder perpetrated with a large number of drugs standardized in the earlier editions of the present *Pharmacopœia* has been the cause of the chief adverse criticism directed against this otherwise meritorious work.

Tocher, J. F., thinks it is unsound to insert in the *Pharmacopœia* limits of values, even after the true range, mean, and variability of the proportions are found.—*Year-Book of Pharmacy*, Lond., 1909, p. 229.

Tunmann, O., discusses the microchemical detection of alkaloids and describes and illustrates the results obtained in connection with the leaves of *pilocarpus*.—*Schweiz. Wchnschr. f. Chem. u. Pharm.*, Zürich, 1909, v. 47, pp. 177-183.

Elvove, Elias, discusses the fixing power of alkaloids on volatile acids and its application to the estimation of alkaloids with the aid of phenolphthalein or by the Volhard method.—*Bull. Hyg., Lab., U. S. P. H. and M.-H. S.*, 1909, No. 54.

Reichard, C., continuing his contribution to our knowledge of alkaloid reactions, presents a compilation of the chemical reactions given by physostigmine or eserine.—*Pharm. Zentralh.*, 1909, v. 50, pp. 375-384.

Veley, Victor Herbert, discusses the affinity values of certain alkaloids, including aconitine, quinine, cocaine, sparteine, strychnine, pilocarpine, and hydrastine.—*J. Chem. Soc., Lond.*, 1909, v. 95, pp. 758-768.

Gössling, W., reviews the progress made in the chemistry of alkaloids in 1908.—*Chem. Ztg., Cöthen*, 1909, v. 33, p. 817 ff.

An editorial (*Chem. & Drug. Lond.*, 1909, v. 75, p. 544) presents a table showing the amount of alkaloids exported from and imported into Germany during the years 1907 and 1908.

Krajanski, Artur, discusses the distribution of alkaloids in the blood.—*Pharm. Post, Wien*, 1909, v. 42 pp. 229-231.

Wilks, Samuel, in a comparison of the drug with its alkaloids, asserts that he has found more value in many vegetable drugs in their crude state than in the use of the most characteristic principles which were extracted from them as alkaloids.—*Folia Therap., Lond.*, 1909, v. 3, pp. 99-102.

#### 6. ASSAY PROCESSES.

Parker, C. E., asserts that of the several official tests, the assay processes are by no means the least important, as they offer a means for verifying the identity and the activity of the several alkaloidal drugs and also provide for controlling the activity of the several preparations made from them.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 20.

McIlvaine, A. Robinson, suggests that the Government assays be used as a basis for the sale of imported drugs.—*Am. Druggist, N. Y.*, 1909, v. 54, p. 9.

Lyons, A. B., reviews the progress in standardization of pharmacopœial drugs in this and other countries, and points out that on the whole the framers of the Pharmacopœia have been inclined to be conservative.—*Ibid.*, 1909, v. 55, p. 339.

Squire and Caines point out that as regards chemical standardization, the Pharmacopœia of the United States is far in advance of most of the other pharmacopœias.—*Proc. VIIth Internat. Congress App. Chem., Sec. VIIb, Pharmacy*, 1909, London, 1910, p. 80. Also *Chem. & Drug., Lond.*, 1909, v. 74, p. 877.

Sadtler Samuel P., points out that with the introduction of assay processes in the U. S. P., some 20 in number, a notable advance was made, as assayed and standardized drugs now give the manufacturer of pharmaceutical preparations, whether working on the large or small scale, uniform raw materials for his use.—*Proc. VIIth Internat. Congress App. Chem., Sec. VIIb, Pharmacy*, 1909, London, 1910, p. 117.

Cribb, C. H., in a book review, points out that of 37 preparations dealt with, the British Pharmacopœia fixes official standards for 15



while the German, French, and American fix limits for 20, 19, and 27, respectively.—*Analyst*, London, 1909, v. 34, p. 254.

Gordin, H. M., in discussing drug assaying, points out that as a matter of fact an alkaloidal process only proves that the drug or preparation contains the required amount of alkaloid, but it does not throw any light at all upon the question whether the extract represents the whole drug and has been prepared by the U. S. P. process.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 42.

Lyons, A. B., strongly advises against increasing the present list of drugs for which alkaloidal standards shall be established by the U. S. P. He points out that the amount of total alkaloid is no criterion of the therapeutic virtue of a drug, and that standards of this type mean little or nothing.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 801.

Beringer, George M., thinks that the official assay processes fairly reflected the status of our knowledge at the time of the revision. They mark a very decided advance over the assays of previous revisions and compare very favorably with those of other pharmacopœias, even of later date.—*Ibid.*, p. 801.

Diekman, George C., points out that the assay methods given in the Pharmacopœia are open to criticism in many respects. In some cases the direction goes unnecessarily into detail, as in the direction for folding the filter. In others it was not sufficiently explicit, as in the direction to shake the mixture of opium and menstruum.—*Am. Druggist*, N. Y., 1909, v. 55, p. 323.

Puckner, W. A., in criticising the present official assay processes, points out that some are worded in a way that would lead one to suppose that they were intended for a novice, while others assume the highest degree of skill in order to carry out the process.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 29.

Dohme and Engelhardt review the assay methods of the U. S. P. and make a number of suggestions in connection therewith.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 879–886. Also *Am. J. Pharm.*, Phila., 1909, v. 81, p. 438.

Moerk, Frank X., presents a table showing the alkaloidal assay requirements of the U. S. P. VIII, giving the name of drug or preparation, the quantity taken, the alkaloid obtained, and the per cent of alkaloid required.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 924.

Eliel, Leo, discusses the expense and time required for assaying and standardizing U. S. P. preparations, and points out that pharmacists can, and should, assay all of their preparations requiring assays.—*Proc. Pennsylvania Pharm. Ass.*, 1909, pp. 277–278. Also *Apothecary*, 1909, v. 21, July, p. 18.

Bernegau, L. Henry, presents some laboratory notes on assay work in which he embodies a number of practical suggestions regarding the

details of methods of procedure.—*Am. J. Pharm., Phila., 1909, v. 81, pp. 122-125.*

Parker, C. E., discusses the assay of drugs and the efforts that have been made by the Association of Official Agriculture Chemists to perfect the official assay processes by cooperative work and comparative study.—*Ibid.*, pp. 59-65. See also *Western Druggist, Chicago, 1909, v. 31, pp. 139-142, 468-472*, and *Proc. Ass. Off. Agric. Chem., 1909, 26th Ann. Conv., pp. 192-196.* (*Bull. Bur. Chem., U. S. Dept. Agric., 1910, No. 132*).

Havenhill, L. D., believes that finer powders, No. 80 at least, would yield better results in the official assay processes. He prefers Keller's general method of assay to the percolation method, and believes that more work should be done before it is discarded for the longer and theoretically more exact percolation.—*Proc. Am. Pharm. Ass., 1909, v. 57, p. 801.*

Dunn, John A., points out that he has found it necessary, in some cases, to make modifications in the U. S. P. assay method to insure uniform and accurate results. In other cases changes were made to prevent emulsification and thus save considerable time in carrying out the process.—*Ibid.*, p. 951.

Roberts, John G., presents a number of practical suggestions for the improvement of U. S. P. assay methods. He thinks that while the methods for the assay of alkaloidal drugs and their preparations are on the whole very satisfactory there are many slight changes which if incorporated would tend to give more accurate results.—*Am. J. Pharm., Phila., 1909, v. 81, pp. 117-121.* Also *Merck's Rep., 1909, v. 18, pp. 203-205.*

Schneider, Albert, asserts that the U. S. P. methods of assay are beyond the ability and equipment of the average retail druggist.—*Proc. Am. Pharm. Ass., 1909, v. 57, p. 741.*

An editorial (*Pacific Pharmacist, 1909-10, v. 3, p. 246*) points out that there is considerable variation in the results of assays by different chemists.

Rusby, H. H., points out that processes for determining the active constituents of drugs must be given in detail, if correlating results are to be expected. He also points out the possibility of saving space by printing blanket processes with cross references when necessary.—*Midl. Drug., 1909, v. 43, p. 687.*

Gordin, H. M., thinks that no one who is without experience in assaying can carry out an assay process successfully.—*Bull. Am. Pharm. Ass., 1909, v. 4, p. 29.*

A communication from the Pennsylvania State Board of Pharmacy brings out an interesting question as to the permissible variations with reference to extracts of *nux vomica* and fluid extract of *belladonna* leaves.—*Proc. Am. Pharm. Ass., 1909, v. 57, p. 744.*

LaWall, Chas. H., points out that at the present time a variation of 20 to 30 per cent in alkaloidal composition in crude drugs is not to be considered excessive.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 179.

Caesar & Loretz (Geschäfts-Ber., 1909, pp. 70-71), in an introduction to the methods of assay recommended by them, present a description of the apparatus that is necessary and make suggestions for the home production of many of the necessary appliances.

Thum, John K., reports obtaining concordant results by the Webster general method of assaying, and points out that this method eliminates  $\text{NH}_3$ , which is ever present as salts in drugs and their preparations, and tends to prevent the formation of emulsions.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 81.

Elvove, Elias, discusses the fixing power of alkaloids on volatile acids, and its application to the estimation of alkaloids with the aid of phenolphthalein or by the Volhard method.—Bull. Hyg. Lab., U. S. P. H. & M.-H. S., 1909, No. 54, pp. 21.

Heikel, Gunnar, presents his method for alkaloid determinations with mercuric potassium iodide, based upon titration of the residual mercury.—Midl. Drug., 1909, v. 43, pp. 50 ff.

Clark, A. H., presents a note on the periodide test for alkaloids, and calls attention to a possible error that might arise in the presence of acidulated ether, which gives a reddish-brown precipitate of iodine, which, in appearance, resembles the precipitate formed when the iodine solution is added to a solution of an alkaloid.—Am. J. Pharm., Phila., 1909, v. 81, pp. 176-177.

Kottenhoff, G., discusses the alkaloidal assays of the Ph. Belg. III, which he finds very defective.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, pp. 132-138.

Düsterbehn discusses the extent to which the determination of alkaloids is required in the Ph. Fr. V, and enumerates the official drugs for which alkaloidal assays are given.—Apoth. Ztg., Berl., 1909, v. 24, p. 274.

Utz discusses the determination of alkaloids, bitter principles, and glucosides by means of the Ziess immersion refractometer.—Chem. Ztg., Cöthen, 1909, v. 33, pp. 47-49.

Turner, Joseph L., reviews some of the recent developments in alkaloidal assaying.—Am. J. Pharm., Phila., 1909, v. 81, pp. 125-129. Also Merck's Rep., 1909, v. 18, pp. 140-141.

Sadtler, S. S., reports various methods of avoiding emulsions in organic analysis.—J. Ind. Eng. Chem., 1909, v. 1, pp. 479-480.

Roberts, John G., points out that stubborn emulsions are readily broken by treating with an acid, dilute sulphuric, if alkaline, or by treating with ammonia if acid.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 81.

Fiske, Augustus H., describes and illustrates an apparatus for the extraction of liquids with ether.—*Am. Chem. J.*, 1909, v. 41, pp. 510-515.

#### 7. PHYSIOLOGICAL STANDARDIZATION.

Capps, Pratt, McCrae, and Halsey state that in regard to the question of additions, the committee recommends that the physiologic standard for the strength of certain drugs be adopted. Among these they suggest digitalis, strophanthus, and ergot. At present various methods are used, and it would seem wise that a definite standard should be laid down.—*J. Am. M. Ass.*, 1909, v. 53, p. 792.

Hunt, Reid, points out that there is an increasing demand for physiologically standardized drugs, and for a fuller recognition of antitoxins and vaccines, and believes that the wishes of the physician in regard to physiologically standardized preparations should be heeded.—*Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, p. 10.

An editorial (*Western Druggist*, Chicago, 1909, v. 31, pp. 728-729) discusses the introduction of physiological standards in the U. S. P., and points out that much can be said in opposition to assay standardization of any extended list of drugs, for the reason that in many cases their active principles have never been clearly defined and, in the nature of things, probably never will be sufficiently to serve as a basis for standardization.

Kahn, Joseph, on behalf of the committee on adulterations, suggests that some definite physiological standards be devised and officially adopted by the committee of revision of the U. S. P.—*Proc. New York Pharm. Ass.*, 1909, p. 266. See also *Am. Druggist*, N. Y., 1909, v. 55, p. 7.

The editor of the "Pharmacology" column (*J. Am. M. Ass.*, 1909, v. 53 p. 1930) states that it must be apparent that the time has come when we must introduce physiologic standardization for at least a few drugs—such as ergot, digitalis, and strophanthus and their preparations—which are unsuited for chemical assay.

Wilbert, M. I., discusses the evolution of pharmacology and the development of this branch of medicine in the United States, and points out the possibility of controlling some of the more active non-alkaloid-containing medicaments.—*Am. J. Pharm.*, Phila., 1909, v. 81, pp. 411-415.

Edmunds and Hale present a comprehensive study of the several methods of physiological standardization of digitalis that have been proposed; they also report experimental work on a number of preparations of digitalis.—*Bull. Hyg. Lab., U. S. P. H. & M.-H. S.*, 1909, No. 48, pp. 61.

Houghton and Hamilton discuss the pharmacology of heart tonics and conclude that, since the chemical assay of these drugs has been

so thoroughly demonstrated to be unreliable, some method of pharmacological assay must be adopted.—*Am. J. Pharm.*, Phila., 1909, v. 81, pp. 461-474. See also *Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 773-786.

Houghton, E. M., outlines a proposition for the introduction of international standards for the physiological assay of the heart tonics.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 878. See also *Proc. VIIth Internat. Congress App. Chem.*, Sec. VIIIb, Pharmacy, 1909, London, 1910, pp. 95-96, and *Lancet*, Lond., 1909, v. 176, pp. 1744-1747.

Martin, William, reports some experiences in the testing of drugs by biochemical methods with special reference to digitalis, squill, and strophanthus.—*Pharm. J.*, Lond., 1909, v. 29 (83), pp. 149-153. Also *Year-Book of Pharmacy*, Lond., 1909, pp. 239-258.

Hale, Worth, discusses the factors relating to the standardization of digitalis and expresses the belief that it would be desirable to include in the next edition of the *Pharmacopœia* of the United States some definite unit to which all digitalis preparations should conform.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 768-773.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, pp. 2-3) present notes on the physiological standardization of drugs which do not admit of reliable chemical assay. They believe that for the standardization of digitalis, squill, and strophanthus the isolated mammalian heart method is the most desirable. For ergot they recommend employing the isolated uterus of the rabbit.

Winckel, Max, discusses the value of recent pharmacological work, and the relation to the development of pharmaceutical chemistry.—*Schweiz. Wchnschr. f. Chem. u. Pharm.*, Zürich, 1909, v. 47, pp. 493-496. See also *Pharm. Prax.*, 1909, v. 8, pp. 233-235.

## 7. PHARMACEUTICAL PREPARATIONS.

Oldberg, Oscar, thinks that mixtures, the medicinal action of which is produced by more than one distinct drug or chemical compound, should not be found in the *Pharmacopœia*, because empiricism lowers its dignity and scientific character.—*Pacific Pharmacist*, 1909-10, v. 3, p. 330. See also *Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 430.

Wilbert, M. I., thinks that the pharmaceutical preparations included in the *Pharmacopœia* of the United States should be limited and as simple as possible, having regard mainly to scientific therapy rather than elegant pharmacy, which latter should be relegated to the *National Formulary*.—*Midl. Drug.*, 1909, v. 43, p. 684.

Jacobi, Abraham, asserts that there are too many prescriptions in the *Pharmacopœia*, and too many prescriptions in the *National Formulary*. In both of these books the physician has been disappointed.—*Tr. Am. M. Ass.*, Sec. Pharm. & Therap., 1909, p. 233.

Tocher, James Fowler, points out that inadequate formulas are frequently due to the fact that they represent a few experiments of one person, and do not, as they should, represent the experiences of the profession at large.—*Chem. & Drug*, Lond., 1909, v. 75, p. 208.

Hynson, Henry P., in discussing the National Formulary, thinks that the adoption of an unfortunate plan or policy for the earlier editions may be held to blame for most of the bad pharmacy in it.—*Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, p. 230.

Oldberg, Oscar, thinks that both the Pharmacopœia and the Formulary should be revised in such a way as to give the pharmacist a chance to make his own preparations with no greater trouble and no more apparatus than is absolutely necessary.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 123.

Diehl, C. Lewis, points out that pharmacists who are inclined to criticize the pharmacy of the Formulary should not lose sight of the fact that many of the formulas were avowedly introduced to enable pharmacists expeditiously and extemporaneously to supply certain medicinal compounds infrequently prescribed, and that in a few of these formulas a sacrifice had to be made on the score of stability or perfection in order to secure celerity and convenience in meeting the demand.—*Proc. Pennsylvania Pharm. Ass.*, 1909, pp. 267-268.

An editoria! (*Drug Topics*, New York, 1909, v. 24, p. 193) points out that the Commissioner of Internal Revenue, referring to alcoholic medicinal preparations, says that the Government holds that in a genuine medicine the alcohol should not be more than is necessary for the legitimate purposes of extraction, solution, or preservation, and that the preparation should contain approximately a U. S. P. dose of some medicinal ingredient of recognized value, either alone or in combination with other compatible drugs.

Schamelhout, A., commenting on the report of the Belgian inspectors of pharmacies, calls attention frequently to the necessity for the pharmacist to prepare his own galenicals.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 265.

Gartside, W., makes a plea for the manufacture in individual pharmacies of many if not all of the numerous preparations, official and unofficial, that go to make a chemist's shop.—*Pharm. J., Lond.*, 1909, v. 28 (82), pp. 266-269.

Schimmel, M. S., asserts that druggists are not capable of making uniform preparations, and further asserts that preparations made from fluid extracts are a worthless lot.—*Pharm. Era*, 1909, v. 42, p. 496.

Wilbert, M. I., points out that in Germany it is proposed to insure the identity and activity of pharmacopœial medicaments by compelling the home manufacture of all galenical preparations.—*Am. J. Pharm., Phila.*, 1909, v. 81, p. 420.

For discussion on the subject see *Apoth. Ztg.*, Berl., 1909, v. 24, pp. 181-182, 254-256, 322-324, 729-731. Also *Pharm. Ztg.*, Berl., 1909, v. 54, pp. 260, 307-308, 335-335, 467, 493, 501-503, 739-740, 835-836.

Ochsenhirt, Oscar N., discusses the new preparations of the *Pharmacopœia* from the point of view of profit to be derived from them.—*Apothecary*, 1909, v. 21, March, p. 20.

Winckel, Max, discusses the influence of enzymes in the making of pharmaceutical preparations.—*Pharm. Post*, Wien, 1909, v. 42, pp. 834-835. Also *Ztschr. d. allg. österr. Apoth.-Ver.*, Wien, 1909, v. 47, p. 459.

Hallberg, C. S. N., points out that the omission of the enumeration of all preparations into which the drugs and chemicals enter has been criticized, and it is believed that this feature should be restored.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 798.

#### 1. GENERAL FORMULAS.

Snow, C. M., advocates the adoption of general formulas for different classes of galenical preparations, and thinks that this would result in the saving of space, since the processes now given in the *Pharmacopœia* for these preparations are very largely repetitions.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 90.

Hallberg, C. S. N., thinks that the general formulas might be extended to a number of other classes of preparations, in addition to waters and suppositories. He also thinks it advisable to consider the French Codex method, which directs that a process in a previously named formula be followed.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 598.

Kalusowski, H. E., expresses the belief that it would be unfortunate to delete the general formulas and descriptions from the National Formulary.—*Pharm. Era*, 1909, v. 42, p. 637.

The members of the Chicago branch believe that the principle of general processes and introductory notices, as at present included in the N. F., should be maintained in the next revision.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 436.

Oldberg, Oscar, thinks that the official processes of the *Pharmacopœia* should tend to encourage the rehabilitation of practical pharmacy and that the U. S. P. committee of revision should endeavor to bear this suggestion in mind.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 429.

Taylor, Augustus C., thinks that formulas, like proverbs, must be evolved rather than made, and points out that what the pharmacist really wants is a formula that will enable him to prepare the remedy ordered without the aid of the manufacturer in such a way that the

preparation will be stable when prepared.—Pharm. Era, 1909, v. 42, p. 637.

Goetting, E. C., asserts that general directions for the making of any one class of preparations should suffice, and therefore it would be unnecessary to include with each preparation a detailed method of procedure for making that particular preparation. He commends the general directions for making fluid extracts embodied in the National Formulary, as being an indication of the type formulas to be followed.—D.-A. Apoth. Ztg., N. Y., 1909–10, v. 30, p. 30.

Snow, C. M., asserts that in all pharmacopœias, except that of the United States and the British, general processes are outlined under the descriptions of the various classes of the extractive preparations and then simply referred to under each individual preparation with such additional detail as may be required.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 155.

An unsigned article calls attention to the general formulas contained in the Ph. Hung. III, and points out that this book contains definitions for aromatic waters, decoctions, infusions, plasters, extracts, pills, powders, teas, suppositories, sirups, tinctures, ointments, and medicinal wines.—Ztschr. d. allg. österr. Apoth.-Ver., Wien, 1909, v. 47, p. 448 ff.

An editorial (National Druggist, 1909, v. 39, p. 7) points out that the Ph. Svec. IX, in addition to the formulas for the ordinary pharmaceutical preparations, also includes a formula for tooth powder and one for tooth paste.

#### FORMS OF MEDICAMENTS.

Oldberg, Oscar, points out that the National Formulary has been held up to scorn on account of the absurd character of some of its preparations, and the compilers have been seriously criticized. But it must not be forgotten that these grotesque polypharmaceutical preparations were included solely because they are prescribed by many medical practitioners, and before the book had become a legal standard.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 430.

Mittelbach, William, in criticising the unnecessarily large number of elixirs in the National Formulary, says, let us get back to true pharmacy, even to the shot-gun prescriptions, rather than get completely into the ready-made, hand-me-down mixture way of doing things.—Drug. Circ., N. Y., 1909, v. 53, p. 516.

Cook, E. Fullerton, in discussing the sirups of the National Formulary points out that the fault of many of the formulas is the lack of detail in the directions for manufacture.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 186.

Düsterbehn discusses the galenical preparations of the Ph. Fr. V. and enumerates the various classes represented; he also discusses the



method of making several preparations, particularly the extractives and describes the method to be employed in percolating drugs.—*Apoth. Ztg.*, Berl., 1909, v. 24, p. 281.

Mayo, Caswell A., in a review of the French Codex, calls attention to and enumerates the preparations in the several classes of galenicals.—*Am. Druggist*, N. Y., 1909, v. 54, p. 232.

Beringer, George M., presents the results of some further work on fluidglycerates and the formulas for a number of preparations of this type.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 1009–1014. Also *Am. J. Pharm.*, Phila., 1909, v. 81, pp. 475–480.

Martindale, W., points out that a certain amount of discrimination should be used in employing glycerin as a substitute for alcohol, since all drugs are not suitable for glycerin extraction.—*Lancet*, 1909, v. 177, p. 62.

## 2. CHANGES IN STRENGTH.

An editorial (*Am. Druggist*, N. Y., 1909, v. 54, p. 227) discusses the deterioration of galenical preparations, and points out that many of these preparations are unstable, and that because of this fact the retail druggist might reasonably urge the physician to use preparations freshly prepared or made by the pharmacist.

Gane and Webster take exception to the statement made by Ribaut (*Bull. sc. pharmacol.*) that extracts of solanaceous plants deteriorate on keeping. They believe that solanaceous alkaloidal extracts are among the most stable and least liable to undergo deterioration.—*Drug Topics*, New York, 1909, v. 24, p. 21.

Dohme, A. R. L., reports a comprehensive investigation on the permanence of galenical preparations, and concludes that few, if any, pharmaceutical products deteriorate to any appreciable extent.—*Proc. Maryland Pharm. Ass.*, 1909, pp. 98–104. Also *Am. Druggist*, N. Y., 1909, v. 55, pp. 37–38.

Niece, Frederick E., discusses the deterioration of solutions and points out some of the chemical reasons why solutions deteriorate.—*Western Druggist*, Chicago, 1909, v. 31, pp. 78–80.

Kline, C. M., discusses the investigations that have been made during the past year or more regarding the deterioration of pharmaceutical preparations.—*Proc. N. W. D. A.*, 1909, pp. 121–122.

An editorial (*National Druggist*, 1909, v. 39, p. 67) commenting on the deterioration of pharmaceutical preparations points out that the standards given in the *Pharmacopœia* are for freshly prepared products, and no allowance is made for any subsequent deterioration in strength. If preparations that have been kept on hand are to be declared illegal, it is evident that the druggist will be obliged to throw away a large amount of material every year, and thus suffer a pecuniary loss.

## 3. STANDARDIZATION.

Gordin, H. M., discusses the identification of galenical preparations and points out a number of constants that could be established by the committee of revision to control the uniformity of preparations made from drugs of good quality.—*Am. Druggist*, N. Y., 1909, v. 54, p. 37.

Amos, W. S., expresses the hope that the next revision of the Pharmacopœia will give the volume per cent of alcohol in such preparations as contain it as a menstruum, with methods of arriving at the standard given.—*Proc. Kansas Pharm. Ass.*, 1909, p. 55.

Main, Thos. F., chairman, summarizing his report, suggests that formulas for pharmaceutical preparations be adjusted to fair average qualities of drugs of vegetable origin.—*Proc. N. W. D. A.*, 1909, p. 165.

Pearson, W. A., believes that the average quality of drugs has been lower than in previous years, and it is therefore necessary to keep a strict watch on the quality of crude materials if we wish to keep up the standard for pharmaceutical preparations set by the U. S. P.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 121.

Stewart, F. E., believes that standardization should not be confined to drugs, but extended to druggists. This can be accomplished only by reorganization and the adoption of an interprofessional code of ethics.—*Ibid.*, p. 216.

Oldberg, Oscar, thinks that the Pharmacopœia does not go far enough in utilizing what is known regarding identification tests for the various galenicals. He thinks that every effort should be made to provide the most complete tests for purity and identity of pharmacopœial articles.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 30.

Dieterich, Karl, outlines methods for determining the nature and value of a number of galenical preparations.—*Pharm. Zentralh.*, 1909, v. 50, pp. 539-544.

See also article by Dieterich and Mix.—*Ibid.*, pp. 726-734.

Berger abstracts the article by Dieterich.—*Schweiz. Wchnschr. f. Chem. u. Pharm.*, Zürich, 1909, v. 47, pp. 633-634.

Frerichs, G., discusses and controverts the several points made by Dieterich and asserts that the valuation of ready-made galenicals is impractical.—*Apoth. Ztg.*, Berl., 1909, v. 24, pp. 600-602.

Dieterich, K., replies.—*Ibid.*, p. 626.

Naylor and Chappel discuss the estimation of extractive and glycerin in spirituous galenicals and report a number of analyses made.—*Pharm. J.*, Lond., 1909, v. 29 (83), pp. 139-141. Also *Year-Book of Pharmacy*, Lond., 1909, pp. 260-265.

MacEwan and Forrester discuss the variation in the degree of activity of certain toxic drugs, and submit propositions for an inter

national study of these drugs.—J. d. pharm. d'Anvers, 1909, v. 65, pp. 473-482. See also Proc. VIIth Internat. Congress App. Chem., Sec. VIIIb, Pharmacy, 1909, Lond., 1910, pp. 81-93.

#### 4. REQUIREMENTS.

Flemer, Lewis, points out that the three cardinal requisites of all medicinal products, from a pharmaceutical standpoint, should be uniformity in potency, permanency, and appearance. It is doubtful if all or any of these requirements can be obtained in elixirs if fluid extracts are used in their preparation.—Western Druggist, 1909, v. 31, p. 338.

Hilton, Samuel L., thinks it would be desirable to add under the name of each preparation containing alcohol a statement regarding the amount of absolute alcohol by volume in the finished preparation, and, if the preparation contains any of the drugs that are required by the act to be stated on the label, they also should be stated, so that no question could arise about the proper labeling of official preparations.—Pharm. Era, 1909, v. 41, p. 254.

Wiley, H. W., reports that experiments to determine the percentage of alcohol present in medicinal products containing essential oil show that the essential oils present tend to vitiate the results obtained by the regular methods.—Ann. Rep., U. S. Dept. Agric. for 1909, 1910, p. 432.

Vanderkleed, Charles E., discusses the determination of alcohol in galenical preparations and the difficulties encountered in the presence of volatile substances of various kinds.—Am. J. Pharm., Phila., 1909, v. 81, pp. 129-141.

Gane and Webster discuss the determination of alcohol, ether, and chloroform in pharmaceutical preparations, and outline the modifications necessary for determining the alcohol content of some of the more important galenicals.—Drug Topics, New York, 1909, v. 24, pp. 116-117.

Cowie and Broadbent present a preliminary note on the refractometric examination of galenical preparations.—Pharm. J., Lond., 1909, v. 29 (83), p. 159. Also Year-Book of Pharmacy, Lond., 1909, pp. 323-324.

Gartside, W., discusses colors, odors, and flavors in pharmacy, and presents a number of suggestions in connection with these several properties of galenical preparations.—Pharm. J., Lond., 1909, v. 29 (83), pp. 757-758.

#### 5. GALENICALS.

Oldberg, Oscar, expresses the hope that some limit will be placed upon the extent to which complex preparations are included on the sole ground that they are actually used.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 430.

Schmidt, Val., thinks that the great drawback to the National Formulary is the complexity of the formulas. In many instances it requires from three to four other preparations to make what you want. He thinks this is one of the reasons why the National Formulary is not looked on with as much favor as it should be.—*Ibid.*, p. 1049.

Bruder, O. E., thinks that the great majority of National Formulary preparations that are directed to contain fluid extracts should be made from the drug itself by percolation.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 230. Also Proc. Am. Pharm. Ass., 1909, v. 57, p. 963.

Dunn, John A., presents a number of suggestions for modification of U. S. P. and N. F. formulas.—*Ibid.*, v. 57, p. 942-959.

Weinstein, Abraham, presents a number of improved and original formulas.—*Ibid.*, pp. 1131-1133.

Beringer, George M., reports some additional work on fluid glycerates of nux vomica, red rose, and sanguinaria, and gives the results of his experiments upon a few fluid glycerates in which an alkali is used to assist the extraction.—Am. J. Pharm., Phila., 1909, v. 81, p. 446.

Fournier, Eug., discusses the importance of the galenical preparations for the physician, and the investigation of the active principles of plants and the study of pharmacodynamics for the pharmacist.—Bull. sc. pharmacol., Par., 1909, v. 16, pp. 534-539.

#### 6. PRESERVATION.

Sturmer, J. W., asserts that the improper care of pharmaceutical preparations causes much loss and annoyance, and suggests that greater care be devoted to the study of proper methods of keeping galenical preparations.—New Idea, 1909, v. 31, pp. 253-255.

Bruder, O. E., thinks that too little attention is paid in the National Formulary to the preservation of preparations, and expresses the belief that it should be the privilege of the book to contain directions for keeping.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 230. Also Proc. Am. Pharm. Ass., 1909, v. 57, p. 964.

Searby, W. M., discusses the proper preserving of ready-made pills, tablets, and tablet triturates. He calls attention to some of the precautions necessary for keeping these preparations.—Pacific Pharmacist, 1909-10, v. 3, pp. 183-185.

The instructions circulated by Renick W. Dunlap, the food and dairy commissioner of the State of Ohio, in regard to the avoidance of deterioration of official preparations are reprinted.—National Druggist, 1909, v. 39, p. 254.

An editorial (New Idea, 1909, v. 31, p. 42) discusses the experiments made by H. E. Barnard, chemist to the State Board of Health

of Indiana, and his finding that samples of tincture of iodine and spirit of camphor, made in strict accordance with the U. S. P. and allowed to stand uncorked for some time, actually gained in strength, owing to the evaporation of the alcohol.

Winckel, Max, discusses the need for considering the influence of enzymes in connection with the production and preservation of pharmaceutical preparations.—*Apoth. Ztg.*, Berl., 1909, v. 24, p. 722.

An unsigned article describes a porcelain container having its interior lined with black enamel, and therefore well adapted for the preservation of chemicals, drugs, and pharmaceutical preparations likely to be decomposed by light.—*Ibid.*, p. 827.

An unsigned article discusses the storing and preservation of inflammable liquids.—*N. A. R. D. Notes*, v. 8, 1909, p. 481.

#### 7. INCOMPATIBILITY.

Fenton, Peter, enumerates a number of recent examples of incompatibility that were brought to his attention.—*Brit. & Col. Drug.*, 1909, v. 55, p. 63.

An abstract calls attention to a number of incompatibilities of some new remedies.—*Chem. & Drug.*, Lond., 1909, v. 75, p. 121.

Sayer, M. C., presents a compilation of the incompatibilities of some of the new synthetics.—*Drug. Circ.*, N. Y., 1909, v. 53, pp. 14–15.

Caille, E., reports the results of a physicochemical study of several pharmaceutical incompatibilities.—*Compt. rend. Acad. d. sc., Par.*, 1909, v. 148, pp. 1458–1461. Also *Bull. sc. pharmacol.*, Par., 1909, v. 16, pp. 711–714.

Bonnes, Jacques (*Gaz. hebd. sc. méd.*, Bordeaux), presents a comprehensive study of the incompatibility of mercury and its salts with other medicaments.—*Pharm. Post. Wien*, 1909, v. 42, pp. 5–8.

#### 8. PERCOLATION.

Oldberg, Oscar, points out that percolation is an exceedingly valuable and effective process for the extraction of the soluble matter of plant drugs, and every properly trained pharmacist should know how to perform it and should make use of it whenever the results sought are best secured by its employment.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 429.

The committee on president's address expresses the belief that the percolation of drugs for the extraction of their soluble constituents is a process of which American pharmacists may well feel proud.—*Ibid.*, p. 495.

Gane, E. H., in commenting on a paper by Otto Raubenheimer, on maceration and percolation, points out that the universal adoption of the method of percolation showed its superiority, and that it is also

cheaper when applied on a large scale.—*Am. J. Pharm., Phila., 1909, v. 81, p. 596.*

Stanislaus, I. V. S., is of the opinion that, where a drug contains less than 50 per cent of extractive, percolation should be used, but in the case of larger percentages of extractive, digestion is to be preferred.—*Ibid., p. 596.*

Snow, C. M., outlines a general process for macero-percolation to be used in the preparation of official tinctures.—*Bull. Am. Pharm. Ass., 1909, v. 4, p. 155.*

Beringer, George M., thinks the process of percolation is well and tersely described in the "Introductory notes," though the specified quantity of menstruum for moistening is not always satisfactory.—*Proc. Am. Pharm. Ass., 1909, v. 57, p. 797.* See also *Am. J. Pharm., Phila., 1909, v. 81, p. 596.*

An unsigned article in a series of "Chapters on practical pharmacy" discusses extraction, and incidentally describes and illustrates various methods of percolation.—*Pharm. J., Lond., 1909, v. 28 (82), pp. 121-122.*

An editorial (*Pacific Pharmacist, 1909-10, v. 3, pp. 449-450*) points out that commercial powders as they appear on the market are so variable in the degree of fineness that it is impossible to obtain uniform products from percolation, and suggests that the U. S. P. should specify the exact fineness.

An editorial note (*National Druggist, 1909, v. 39, p. 7*) states that percolation in the preparation of tinctures does not appear to have met with approval of the revisers of the Swedish Pharmacopœia, for of the 37 tinctures, only those included in the Brussels Conference Protocol are directed to be made by this process.

Wilbert, M. I., asserts that, while the Brussels Conference adopted a resolution to make all tinctures of potent drugs by means of percolation, the Danish Pharmacopœia appears to have been the only one which has so far elaborated on the idea; it includes a practical method for the percolation of opium. He also points out that while several other pharmacopœias direct that tincture of opium be made by percolation they do not give directions for the process.—*Am. J. Pharm., Phila., 1909, v. 81, p. 596.*

## 9. EXTRACTION.

Goris and Perrot discuss the extraction of active principles from vegetable drugs.—*J. d. pharm. et d. chim., Par., 1909, v. 30, p. 185.*

Wulling, F. J., calls attention to the need for further work in the determination of the proper menstrua used in exhausting drugs, and refers to the pernicious habit indulged by some pharmacists in making infusions from tinctures and fluid extracts. He objects also to

the making of tinctures by diluting the fluid extract.—*Proc. Minnesota Pharm. Ass.*, 1909, p. 81.

Lenz, W., describes and illustrates an extraction apparatus that is claimed to be applicable to a great variety of uses.—*Arb. a. d. pharm. Inst. d. Univ. Berl.* (1909), 1910, v. 7, pp. 289–292.

Sadtler, P. B., discusses vacuum evaporation, and the construction of suitable apparatus.—*J. Ind. Eng. Chem.*, 1909, v. 1, pp. 644–652.

#### 10. STERILIZATION.

A resolution adopted by the New York branch of the American Pharmaceutical Association recommends that the revision committee of the United States Pharmacopœia consider the practicability of embodying in the next revision a chapter on sterilization, as has been done in the latest issue of the Swiss Pharmacopœia.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 27.

Thomann, J., discusses the article on sterilization in the *Ph. Helv. IV*, and elaborates on the same, giving detailed directions for the sterilization of a number of official preparations, as well as the sterilization of various utensils and containers.—*Schweiz. Wchnschr. f. Chem. u. Pharm.*, Zürich, 1909, v. 47, pp. 35–40, 50–55, 68–73. See also p. 290 ff.

An editorial (*Am. Druggist*, N. Y., 1909, v. 55, p. 3) comments on the paper by Thomann.

Bennett and Woolcock, discuss the use of sterilization in pharmacy, and present a number of illustrations showing the apparatus used.—*Pharm. J.*, Lond., 1909, v. 28 (82), pp. 420–422, 491–493.

An unsigned article describes and illustrates an apparatus designed for the sterilization of articles at the dispensing counter.—*Apoth. Ztg.*, Berl., 1909, v. 24, p. 103.

An unsigned article points out that the *Ph. Hung. III* provides that sterilization of medicaments is to be carried out according to bacteriological and technical principles, with proper consideration of the characteristics and properties of the substances to be sterilized.—*Ztschr. d. allg. österr. Apoth.-Ver.*, Wien, 1909, v. 47, p. 584.

Candussio, G., presents a contribution to the chemistry of sterilization and discusses the sterilization of solutions of atoxyl.—*Ibid.*, pp. 401–403. Also *Boll. chim. farm.*, Milan, 1909, v. 48, pp. 556–560.

Saporetti, Umberto, discusses the sterilization of solutions for hypodermic use, and concludes his article with a list of substances which may be thus sterilized.—*Ibid.*, v. 48, pp. 587–593.

A number of abstracts call attention to sterilization in pharmacy, sterilization of surgical instruments, sterilization by dry heat, sterilization by moist heat, and sterilization of dressings.—*Western Druggist*, Chicago, 1909, v. 31, pp. 420–422.

Schneider, Albert, presents a continuation of his discussion of pharmaceutical bacteriology, and discusses bacteriological technique

and the preparation of culture media.—Merck's Rep., 1909, v. 18, pp. 175-176; 226-228.

Perrot and Goris discuss the sterilization of medicinal plants with reference to their therapeutic activity.—Bull. sc. pharmacol., Par., 1909, v. 16, pp. 381-390.

## 11. FORMS OF ADMINISTRATION.

### AMPOULES.

Mayo, Caswell A., discusses the making of ampoules, the various methods that have been suggested for filling them, the sterilization of ampoules, and the precautions necessary with substances that are decomposed by heat. He also presents a number of references to articles bearing on the making, filling, and sterilizing of ampoules.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 1106-1122. See also Merck's Rep., 1909, v. 18, pp. 33-35; Am. Druggist, N. Y., 1909, v. 54, p. 94, v. 54, pp. 98-102, v. 55, p. 244; and Am. J. Pharm., Phila., 1909, v. 81, pp. 499-500.

Grübler, M., discusses the production of materials for hypodermic injections in the form of ampoules and outlines a method of preparing the container.—Pharm. Post, Wien, v. 42, pp. 449-459.

Le Bosquet, C. H., discusses the use and preparation of ampoules in France and illustrates the method followed there in filling, sterilizing, and sealing ampoules.—Western Druggist, Chicago, 1909, v. 31, pp. 135-137.

Forrester, George P., discusses some of the difficulties in sterilizing ampoules.—Pharm. J., Lond., 1909, v. 29 (83), p. 41. See also Am. Druggist, N. Y., 1909, v. 54, p. 233.

Bennett and Woolcock in an article on sterilization in pharmacy, describe methods for making, filling, and sterilizing ampoules.—Pharm. J., Lond., 1909, v. 28 (82), pp. 491-492.

Bjerri, Nicolai, discusses ampoules, their forms and methods of preparation.—Arch. f. Pharm. og Chem., 1909, v. 16, pp. 213-221.

Kollo, Constantin, discusses the making, filling, and sterilizing of ampoules.—Pharm. Zentrallh., 1909, v. 50, pp. 1035-1038, 1058-1062.

Pegurier, G., discusses some of the advantages and disadvantages of ampoules, their preparation, sterilization, and use.—Chem. & Drug., Lond., 1909, v. 74, pp. 169-171.

Thomann, J., discusses the sterilization of ampoules, and points out that the most important requirement for insuring the keeping qualities of the contained solution is the use of ampoules made from the best quality Jena glass, followed by complete sterilization.—Schweiz. Wehnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, pp. 66-78.

A trade note describes and illustrates an ingenious ampoule filler.—Chem. & Drug., Lond., 1909, v. 74, p. 366.



## CACHETS.

An editorial (*Am. Druggist*, N. Y., 1909, v. 55, p. 173) discusses the relative value of cachets and compressed tablets and concludes that cachets have none of the disadvantages of tablets, and in other respects have practically everything in their favor.

Dupont, L., discusses cachets or gluten boxes for the extemporaneous covering of medicaments and figures a capsule filler.—*Bull. sc. pharmacol.*, Par., 1909, v. 16, pp. 714–716.

A news note points out that cachets which pass through the alimentary canal without breaking open are forming the subject of an inquiry by French doctors, and a notice will probably be issued to the profession advising what mixtures of salts should not be prescribed in the form of cachets.—*Pharm. J.*, Lond., 1909, v. 28 (82), p. 105.

## CAPSULES.

Planten, H. Rolff, outlines the history of capsules and of capsulating and discusses the various forms and method of making capsules.—*Spatula*, 1908–9, v. 15, pp. 537–540.

Lascoff, J. Leon, expresses the belief that capsules should preferably be dispensed dry, except when the ingredients weigh over 15 grains or include extracts; even then dry powdered extracts should be used instead of solid ones. Great care should also be taken that no substances having any taste or odor be left on the outside of the capsules.—*Merck's Rep.*, 1909, v. 18, p. 68.

An unsigned article discusses soluble elastic capsules, their general nature, and some of the general precautions that should be observed in storing them.—*Proc. Maryland Pharm. Ass.*, 1909, pp. 115–116.

Bourdet, L., discusses soft gelatin capsules and criticizes their determination according to the Ph. Fr. V.—*J. d. pharm. et d. chim.*, Par., 1909, v. 29, pp. 102–106.

The Belgian inspectors of pharmacies report that mention of the weight of the content of capsules is generally wanting; physicians, moreover, neglect to indicate the dose which they desire; there is therefore a complete misunderstanding.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 624.

Remington, J. P., jr., describes and illustrates a capsule filler.—*Am. Druggist*, N. Y., 1909, v. 54, p. 66.

Forret, J. A., describes and illustrates a Bunsen bolt for closing gelatin capsules.—*Pharm. J.*, Lond., 1909, v. 28 (82), pp. 418–419.

## COMPRESSED TABLETS.

An editorial (*Am. Druggist*, N. Y., 1909, v. 54, p. 157) discusses the history of compressed tablets, and states that they were first made in England in 1843, and were introduced into the United States by Jacob Dunton, of Philadelphia, who was afterwards followed by

John Wyeth & Bro., of Philadelphia, and Parke, Davis & Co., of Detroit.

Schelenz, Hermann, in discussing the history of compressed tablets, points out that the German physician Rosenthal, in Erlangen, was the first to recommend (in 1872) medicaments in compressed form.—*Pharm. Ztg.*, Berl., 1909, v. 54, p. 137. See also *Ibid.*, p. 159.

"K. L.," in discussing the history of compressed tablets, asserts that the actual discoverer was an Englishman, Brockedon, who reported his results in the *Pharmaceutical Journal and Transactions*, Vol. III, 1843-44. The first to exploit the article in a commercial way was Jacob Dunton, in Philadelphia.—*Pharm. Ztg.*, Berl., 1909, v. 54, p. 180.

Wilbert, M. I., notes that compressed herbs marketed by the Shakers in the second decade of the nineteenth century are generally admitted to have been the origin of, or at least the forerunner of, compressed tablets.—*Am. Druggist*, N. Y., 1909, v. 54, p. 235.

Rodwell, Henry, presents a number of suggestions on the preparation of compressed tablets.—*Spatula*, 1908-9, v. 15, pp. 617-619.

Schleimer, A., outlines a method for the extemporaneous preparation of compressed tablets.—*National Druggist*, 1909, p. 54. Also *Merck's Rep.*, 1909, v. 18, p. 118.

Buckley, J. F., discusses the evolution of the modern tablet machine and describes and illustrates a continuous-motion rotary machine for making compressed tablets.—*Chem. & Drug.*, Lond., 1909, v. 74, pp. 416-418.

Riemer, C., describes and illustrates a hand tablet machine.—*Apoth. Ztg.*, Berl., 1909, v. 24, pp. 667-668.

Blaschnek, Rudolf, discusses the making of compressed tablets and reports a study of the comparative amount of time required for the disintegration of tablets of insoluble constituents in which starch of varying origin had been used.—*Pharm. Post*, Wien, 1909, v. 42, pp. 169-171.

v. Waldheim, Max, discusses the method of procedure necessary for granulating drugs and comments on the several lubricants that may be used.—*Ztschr. d. allg. österr. Apoth.-Ver.*, Wien, 1909, v. 47, pp. 25-27, 45-46.

An unsigned article discusses the restrictions that have been placed on the manufacture of compressed tablets in Germany, and points out that these restrictions tend to hamper progress and cause loss of trade to German pharmaceutical manufacturers.—*Chem. Ztg.*, Cöthen, 1909, v. 33, p. 122. See also *Pharm. Ztg.*, Berl., 1909, v. 54, pp. 196-197.

Watson, A. D., in discussing the B. P. C., thinks that compressed tablets would be better grouped under one name, *tablettæ* or *tabellæ*, and not to employ three names, *tabletta*, *tabella*, *solvella*, for virtually

the same class of preparations, especially as there are no duplicates among them.—*Brit. & Col. Drug.*, 1909, v. 55, p. 30.

Beates, Henry, asserts that compressed tablets have shaken the public's confidence in medicine.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 112.

An editorial note (*Am. Druggist*, N. Y., 1909, v. 55, p. 173), in discussing the relative value of compressed tablets, asserts that a well-made tablet undoubtedly has its uses, but that, as a rule, tablets can not be dispensed extemporaneously, and recourse must be had, therefore, to the ready-made article prepared, sometimes not over-carefully, from fixed formulas.

Hays, B. Frank, feels that the tablet is worthy of confidence and that it would be a distinct gain if it could be adopted by the Pharmacopœia, even though it has been considered an outcast in pharmacy.

Solis-Cohen, S., sees no objection to having tablets recognized among the methods under which medicine may be prepared.—*Boston M. & S. J.*, 1909, v. 160, pp. 623–624.

#### GRANULES.

Schamelhout, A., notes that the weight of granules may vary, in France, from 0.03 to 0.05 gm.; in Belgium they should be 0.05 gm. The granules which contain 0.0001 gm. of active substance are rose colored in France, in Belgium they should be coated with silver.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 15.

Ruch, Walter, describes a self-adjusting pill roller and finisher which he has found satisfactory.—*Proc. New Jersey Pharm. Ass.*, 1909, p. 45.

#### OVULES.

Schamelhout, A., states that the Ph. Fr. V gives the following formula for ovules which differs from that of the Ph. Belg. III, which, however, is not very explicit: Gelatin, 10; distilled water, 30; glycerin (D. 1.26), 10.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 70.

[N. B.—The ovules of the Ph. Belg. III are classed with suppositories and are made both with a cacao butter and a glycolgelatin base; the ovules of the Ph. Fr. V, on the other hand, correspond more closely with the pastilles of the B. P. C., while the Belgian pastilles are typical lozenges.—Ed.]

#### SUPPOSITORIES.

Schleimer, A., describes a method of making suppositories.—*National Druggist*, 1909, v. 39, p. 54. See also Merck's Rep., 1908, v. 18, p. 118.

Ranwez, Fernand, describes and illustrates a new press for making suppositories and bougies.—*Ann. d. pharm., Louvain*, 1909, v. 15, p. 386.

See also under general heading "Suppositoria."

## 12. METHODS OF ADMINISTRATION.

Beringer, George M., reports that as there has been considerable complaint about the sameness of the flavoring of the elixirs of the N. F., and the lack of basic elixirs of different alcoholic strengths and flavors, a subcommittee has been appointed to work out formulas that will supply a number of these adjuvant elixirs of different flavors and alcoholic percentages, so that the physician may select the one best suited to the needs of his medication.—Proc. New Jersey Pharm. Ass., 1909, p. 114.

Gartside, W., in a discussion of colors, odors, and flavors in pharmacy, makes a number of suggestions in connection with the presentation of desirable vehicles for medicaments.—Pharm. J., Lond., 1909, v. 29 (83), pp. 757-758.

An editorial (J. Therap. & Diet., 1909-10, v. 4, p. 66) asserts that experience has shown that the effects of many remedies are materially different, both in kind and degree, according as they are given by the mouth or administered hypodermically.

Clague, T. Maltby, discusses the electrolytic administration of drugs.—Practical Druggist, 1909, v. 25, pp. 76-77.

Garratt, John M., describes and figures an improved saline transfusion apparatus.—J. Am. M. Ass., 1909, v. 53, p. 2160.

Fralic, W. G., contributes a paper (Chicago Med. Rec., May, 1909) on intravenous infusion, its technique, and some personal observations in 5,000 intravenous operations.—*Ibid.*, v. 52, p. 2024.

Kemp, Robert Coleman, describes a new container for the preservation of a constant temperature in saline solution for rectal irrigation or infusion, applicable to proctoclysis, enteroclysis, hypodermoclysis, and infusion. The author has adapted a vacuum bottle for this purpose.—N. York M. J., 1909, v. 90, p. 298.

Cates, H. Joseph, describes and figures an apparatus for continuous irrigation or infusion.—Lancet, 1909, v. 176, p. 1532.

Harbin, R. M., describes and figures an apparatus for proctoclysis at an even temperature.—J. Am. M. Ass., 1909, v. 53, p. 2160.

Rachford, B. K., presents a paper on the value of the inunction method of administering drugs to children.—Am. J. M. Sc., 1909, v. 137, pp. 31-37.

Thornton, W. Lawson, describes and illustrates a syringe for applying ointment to dressings and wounds.—J. Am. M. Ass., 1909, v. 52, p. 1573.

An editorial (J. Therap. & Diet., 1909-10, v. 4, pp. 2-4) discusses the incidental effects of drugs, and as an explanation of the unusual, occasional, incidental, or by-effects of drugs, refers more particularly to the quality of the drug, the administration of the drug, the peculiarities of the patient, and the ignorance of the prescriber.

## II. INTERNATIONAL STANDARDS.

### I. INTERNATIONAL CONFERENCE FOR THE UNIFICATION OF PHARMACOPŒIAL FORMULÆ FOR POTENT MEDICAMENTS (BRUSSELS CONFERENCE).

#### 1. ADOPTION OF BRUSSELS CONFERENCE PROTOCOL.

Wilbert, M. I., points out that with the growing interchange of literature we in this country can no longer afford to set up for ourselves standards of strength or nomenclature that are at variance with the established practices in other countries.—*Midl. Drug.*, 1909, v. 43, p. 684.

An editorial (*Am. Druggist*, N. Y., 1909, v. 54, p. 328) asserts that nobody will deny that there is a real need for international uniformity in the matter of pharmaceutical and chemical nomenclature, but it would seem an impossible task to reconcile the titles of the German Pharmacopœia with, say, those of the Spanish Pharmacopœia, and both of these with the British Pharmacopœia, the French Codex, and the Pharmacopœia of the United States.

Arny, H. V., reviews the pharmacopœial revision methods of foreign countries.—*J. Am. M. Ass.*, 1909, v. 52, p. 693.

An editorial (*Chem. & Drug.*, Lond., 1909, v. 75, p. 577) asserts that international standards for certain drugs and their preparation would be of distinct service to mankind, and any international discussion of the subject is welcome.

Squire and Caines, in a paper on the standardization of potent drugs and international agreements, assert that considering the number of international conferences which have been held and which have produced no practical result, it must be considered a great achievement that the Brussels Conference got as far as it did toward uniformity in the strength of potent medicines, and gives hope for higher things in the future.—*Proc. VIIth Internat. Congress App. Chem.*, Sec. VIIIb, Pharmacy, 1909, London, 1910, pp. 79–81. Also *Chem. & Drug.*, Lond., 1909, v. 74, p. 877.

Mardetschläger, Ph., presents some suggestions on the importance of uniform methods of examining, more particularly uniform assay methods, of all medicaments, drugs, etc., in the different pharmacopœias of the world.—*Proc. VIIth Internat. Congress App. Chem.*, Sec. VIIIb, Pharmacy, 1909, London, 1910, pp. 93–94.

Houghton, E. M., suggests the introduction of international standards for the physiological assay of the heart tonics of the digitalis series.—*Ibid.*, pp. 95-96.

Thoms, H., in discussing the proposition of establishing international standards for potent medicaments, expresses the belief that the introduction of such standards will only be practical if the questions submitted are as simple as possible. For this reason he would object to including preparations of such drugs as digitalis, as the difficulties involved in standardizing drugs of this kind have as yet not been satisfactorily studied.—*Ibid.*, p. 91.

MacEwan and Forrester discuss the variations in the activity of certain toxic drugs and present suggestions for an international inquiry.—*Ibid.*, pp. 81-89.

Lyons, A. B., reviews the progress made in standardization of pharmacopœial drugs and presents a number of tables showing the nature of the assay processes and the standards included in the leading pharmacopœias.—*Ibid.*, pp. 108-116.

The Section on Pharmaceutical Chemistry of the Seventh International Congress of Applied Chemistry appointed a committee to report on the desirability of greater uniformity in the commercial supplies of potent drugs, the means for determining the same, also on the practicability of approximation in the pharmacopœias of the world to common standards of activity.—*Ibid.*, p. 91.

A news note calls attention to the second international congress for the repression of adulteration and frauds in foods and drugs, to be held in Paris in October, under the auspices of the White Cross Society of Geneva.—*Oil, Paint, and Drug Reporter*, New York, 1909, v. 76, Sept. 13, p. 17.

An unsigned article reports the White Cross Congress for the repression of fraud and the inauguration of international standards for foods and drugs, held in Paris in October, 1909.—*Chem. & Drug*, Lond., 1909, v. 75, pp. 639-641.

Umney, J. C., discusses the international standards for drugs proposed for adoption by the White Cross Society of Geneva.—*Ibid.*, pp. 579-581.

Schamelhout, A., discusses the proposed International Secretariate for the unification of pharmacopœias and shows that, as yet, there is not sufficient adhesion to make it practicable.—*Bull. Soc. roy. de pharm. Brux.*, 1909, v. 53, pp. 293-301.

An editorial (*Chem. & Drug*, Lond., 1909, v. 75, pp. 677-678) comments on the White Cross Congress, reviews the history of the society, and points out some of the difficulties that have been and will be encountered in the effort to establish international standards for foods and drugs.

Oldberg, Oscar, thinks that the conclusion of the Brussels Conference, with regard to the employment of percolation, must be regarded as not justified by the facts.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 429.

Hunt, Reid, points out that in marked contrast to lack of international standards for comparing strength and nomenclature of important medicaments is the condition of the science of medicine as a whole, which the *Pharmacopœia* is supposed to serve; this has become truly international. Important medical discoveries soon become known throughout the civilized world; the leading medical journals of each country are read in all other countries.—*Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, p. 15.

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## 2. DEGREE OF COMPLIANCE WITH PROVISIONS OF BRUSSELS CONFERENCE.

*Comparative table showing degree of compliance in the several pharmacopœias published in 1909 and 1910 with the provisions of the Brussels Conference.*

| Protocol International.  | Ph. Ital. III.   | Ph. Hung. III.  | Ph. Russ. VI.                                | Ph. Germ. V.  |
|--|--|---|--|---|
| Aconiti tuber seu Tuber Aconiti...   | ACONITO (F. I.). <i>Aconitum tubera</i> .  | Not official.....   | Tubera Aconiti. Radix Aconiti s. Napelli.    | Tubera Aconiti. Tuber Aconiti P. I.   |
| Tuber of the current year.....   | Tuber of the current year, general characteristics, physiological test.                        | .....   | 0.8 alkaloids, general description...        | Wild-growing tubers of the current year, general and microscopical characteristics. |
| Aconiti tinctura seu Tinctura Aconiti.   | TINCTURA DI ACONITO (F. I.). <i>Tinctura aconiti</i> .   | Not official.....   | Tinctura Aconiti.....                        | Tinctura Aconiti.   |
| 10 per cent.....   | Same as P. I.....  | .....   | Same as P. I.....                            | Same as P. I.   |
| Alcohol (70 per cent).....   | Color, chemical reaction, extract, 0.05 per cent alkaloids.                                    | .....   | .....do.....                                 | Do.   |
| 0.05 per cent of total alkaloids...  | BELLADONNA (F. I.). <i>Belladonna folia</i> .  | .....   | Assay, 0.05 per cent alkaloids.....          | Color, odor, and taste.   |
| Belladonna folium seu Folium Belladonna.   | The leaf dried, general characteristics, nature of adulterants, chemical test.                 | + Belladonna folia.....                                     | Folia Belladonnae.....                       | Folia Belladonnae. Folium Belladonnae P. I.   |
| Use only the leaf dried.....   | TINCTURA DI BELLADONNA (F. I.). <i>Tinctura Belladonnae</i> .                                  | General and microscopical characteristics, extract content. | Same as P. I., 0.35 per cent alkaloids.      | Leaves of wild-growing plant; assay, 0.3 per cent hyoscyamina.                      |
| Belladonna tinctura seu Tinctura Belladonna.   | Same as P. I.....  | + Tinctura Belladonnae. ( <i>Formula internationalis</i> )  | Tinctura Belladonnae.....                    | Not official.   |
| 10 per cent.....   | .....do.....   | Same as P. I.....   | Same as P. I.....                            | .....   |
| Alcohol (70 per cent).....   | Color, odor, solubility.....   | Specific gravity, extract content, chemical test.           | Assay, 0.035 per cent alkaloids.....         | .....   |
| Belladonna extractum seu Extractum Belladonna.   | ESTRATTO DI BELLADONNA IDRO-ALCOOLICO (F. I.). <i>Extractum belladonnae hydroalcoholicum</i> . | Extractum Belladonnae. ( <i>Formula internationalis</i> .)  | Extractum Belladonnae.....                   | Extractum Belladonnae.  |
| Solid extract (containing about 10 per cent of water) made with alcohol (70 per cent). | Solid extract containing 0.5 per cent alkaloids. Same as P. I.                                 | Same as P. I., assay.....                                   | Same as P. I. Assay, 1.5 per cent alkaloids. | Same as P. I. Assay, 1.5 per cent hyoscyamina.                                      |



Comparative table showing degree of compliance in the several pharmacopœias published in 1909 and 1910, etc.—Continued.

| Protocol International.                                 | Ph. Ital. III.  | Ph. Hung. III.   | Ph. Russ. VI.   | Ph. Germ. V.   |
|---|---|--|---|--|
| Colchid semen seu Semen Colchid.                        | COLCHICO. <i>Colchici semina</i> .....                                    | + Colchici semina.....   | Not official.....   | Semen Colchid. P. I.   |
| Use only the seed.....                                  | General characteristics, to be renewed annually.                          | General characteristics, extract content.  | .....   | General and microscopical characteristics, chemical test.                            |
| Colchid tinctura seu Tinctura Colchid.                  | TINTURA DI COLCHICO (F. I.).<br><i>Tinctura colchid.</i>                  | + Tinctura Colchid. ( <i>Formula internationalis</i> .)                                      | Not official.....   | Tinctura Colchid. P. I.  |
| 10 per cent.....  | Same as P. I.....   | Same as P. I.....  | .....   | Same as P. I.  |
| Acohol (70 per cent).....                               | { Same as P. I.....<br>Color, taste, chemical test.                       | { Same as P. I.....<br>Color, taste, specific gravity, extract content, chemical test.       | { .....<br>.....  | { Same as P. I.<br>Color, taste, chemical test.                                      |
| Digitalis folium seu Folium Digitalis                   | DIGITALE (F. I.). <i>Digitalis folia</i> .....                            | + Digitalis folia.....   | Folia Digitalis.....  | Folia Digitalis. Folium Digitalis P. I.  |
| The leaf of the second year.....                        | The leaf of the second year, to be renewed annually                       | General and microscopical characteristics, extract content, to be renewed annually.          | General description, adulterants enumerated.                | Leaves o. wild-growing plants, not to be kept more than 1 year.                      |
| Digitalis tinctura seu Tinctura Digitalis               | TINTURA DI DIGITALE (F. I.).<br><i>Tinctura digitalis</i> .               | + Tinctura Digitalis.....  | Tinctura Digitalis.....                                     | Tinctura Digitalis. Tinctura Digitalis P. I.   |
| 10 per cent.....  | Same as P. I.....   | 6 per cent.....  | Same as P. I.....   | Same as P. I.  |
| Acohol (70 per cent).....                               | { .....do.....<br>Color, taste, chemical reaction, 2.5 per cent extract.  | { Same as P. I.....<br>Color, odor, taste, specific gravity, extract content, chemical test. | { .....do.....<br>Specific gravity, extract content, testa. | { Do.<br>Color, odor, taste.   |
| Ipecacuanha radix seu Radix Ipecacuanha.                | IPECACUANA (F. I.). <i>Ipecacuanha radix</i> .                            | + Ipecacuanha radix.....   | Radix Ipecacuanha.....                                      | Radix Ipecacuanha.   |
| Only the root bark to be used.                          | Root bark only: general characteristics; limit of ash 2 per cent alkoids. | General and microscopical characteristics; assay, 2 per cent alkoids.                        | General description; assay, 2 per cent alkoids.             | General and microscopical characteristics; assay, at least 1.99 per cent of alkoids. |
| The powder to have an alkaloidal strength of 2 per cent |   |  |   |  |
| Ipecacuanha tinctura seu Tinctura Ipecacuanha.          | TINTURA DI IPECACUANA (F. I.).<br><i>Tinctura ipecacuanha</i> .           | + Tinctura Ipecacuanha ( <i>Formula internationalis</i> ).                                   | Not official.....   | Tinctura Ipecacuanha. Tinctura Ipecacuanha P. I.                                     |
| 10 per cent.....  | Same as P. I.....   | Same as P. I.....  | .....   | Same as P. I.  |

|   |   |   |  |   |
|---|---|---|--|---|
| Alcohol (70 per cent).....  | .....do.....  | .....do.....  | .....do.....   | Do.   |
| Ipecacuanha sirupus seu Sirupus Ipecacuanhae.....   | Color, odor, taste, solubility, 0.2 per cent alkaloids.                           | Color, taste, specific gravity, assay 0.2 per cent alkaloids.             | Color, taste, specific gravity, assay 0.194 per cent of alkaloids. | Color, chemical test; assay, at least 0.194 per cent of alkaloids.          |
| Ipecacuanha 10 per cent of the tincture.....  | Scorpio di IPECACUANA (F. I.). Sirupus Ipecacuanhae.                              | +Sirupus Ipecacuanhae ( <i>Formula Internationalis</i> ).                 | Sirupus Ipecacuanhae.....  | Sirupus Ipecacuanhae. P. I.   |
| Hyocyami folium seu Folium Hyocyami.....  | Same as P. I.....   | Same as P. I.....   | Same as P. I.....  | Same as P. I.   |
| Use only the leaf.....  | GRUSQUAMO (F. I.). Hyocyami folia.  | +Hyocyami folia.....  | Folia Hyocyami.....  | Folia Hyocyami. Folium Hyocyami, P. I.                                      |
| Hyocyami tinctura seu Tinctura Hyocyami.....  | General characteristics, from second-year plants, to be renewed annually.         | General and microscopical characteristics; extract content.               | General description; assay, 0.1 per cent alkaloids.                | General and microscopical characteristics; assay, 0.07 per cent hyocyamine. |
| Hyocyami extractum seu Extractum Hyocyami.....  | Not official.....   | Not official.....   | Not official.....  | Not official.   |
| Alcohol (70 per cent).....  | EXTRACTO DI GRUSQUAMO IDROALCOOLICO (F. I.). Extractum hyocyami hydroalcoholicum. | +Extractum Hyocyami ( <i>Formula Internationalis</i> ).                   | Extractum Hyocyami.....  | Extractum Hyocyami.   |
| Solid extract (containing about 10 per cent of water).  | Same as P. I.....   | Same as P. I.....   | Same as P. I.....  | Same as P. I.   |
| Strychni semen seu Semen Strychni seu Nux vomica.....   | Chemical reaction, 0.5 per cent alkaloids. Same as P. I.                          | Same as P. I. Assay.....  | Same as P. I. 0.3 per cent alkaloids.                              | Same as P. I. Assay, 0.5 per cent hyocyamine.                               |
| 2.5 per cent total alkaloids.....   | NOCE VOMICA (F. I.). Nux vomica.  | +Nuclei vomicae semina.....   | Semina Strychni. Nuclei vomicae.                                   | Semen Strychni.   |
| Strychni tinctura seu Tinctura Strychni; Nuclei vomicae tinctura seu Tinctura Nuclei vomicae..... | General characteristics, chemical test, 2.5 per cent alkaloids.                   | General and microscopical characteristics; assay, 2.5 per cent alkaloids. | General description; assay, 2.5 per cent alkaloids.                | General and microscopical characteristics. Assay, 2.5 per cent alkaloids.   |
| 10 per cent.....  | TINTURA DI NOCE VOMICA (F. I.). Tinctura nuclei vomicae.                          | +Tinctura nuclei vomicae ( <i>Formula Internationalis</i> ).              | Tinctura Strychni. Tinctura Nuclei vomicae.                        | Tinctura Strychni. Tinctura Strychni P. I.                                  |
| Alcohol (70 per cent).....  | Same as P. I.....   | Same as P. I.....   | Same as P. I.....  | Same as P. I.   |
| 0.25 per cent total alkaloids.....  | Color, taste, reaction, extract, 0.25 per cent alkaloids.                         | Color, specific gravity, assay 0.25 per cent alkaloids.                   | Assay, 0.25 per cent alkaloids.....                                | Color, taste, assay, 0.25 per cent alkaloids.                               |

Comparative table showing degree of compliance in the several pharmacopœias published in 1909 and 1910, etc.—Continued.

| Protocol international.  | Ph. Ital. III.  | Ph. Hung. III.   | Ph. Russ. VI.   | Ph. Germ. V.   |
|--|---|--|---|--|
| <b>Strychni extractum seu Extractum Strychni: Nucis vomice extractum seu Extractum Nucis vomice.</b> | ESTRATTO DI NOCE VOMICA IDRO-ALCOOLICO (F. I.). <i>Extractum nucis vomice hydroalcoholicum.</i> | + Extractum nucis vomice ( <i>Formula internationalis</i> ). | Extractum Strychni. Extractum Strychni spirituosum. Extractum Nucum vomicearum spirituosum. | Extractum Strychni. Extractum Strychni P. I.           |
| Alcohol (70 per cent).   | Same as P. I.   | Same as P. I.  | Same as P. I.   | Same as P. I.  |
| 16 per cent total alkaloids.   | Color taste, reaction, 16 per cent alkaloids.   | Color, taste, assay, 16 per cent alkaloids.                  | Assay, 16 per cent alkaloids.   | Color, solubility, assay, 16 per cent alkaloids.       |
| <b>Opil pulvis seu Pulvis Opil.</b>  | OPPIO ( <i>Poleere</i> ) (F. I.). <i>Opil pulvis.</i>   | + Opium.   | Opium. Laudanum. Meconium.  | Opium pulveratum. Pulvis Opil P. I.                    |
| Powder to be dried at 60° C.; morphine, 10 per cent.   | General and microscopical characteristics, 10 per cent morphine, not over 6 per cent ash.       | The powder assayed to represent 10 per cent morphine.        | General description, 10 per cent morphine.  | 10 per cent morphine.                                  |
| <b>Opil extractum seu Extractum Opil.</b>  | ESTRATTO DI OPPIO ACQUOSO (F. I.). <i>Extractum opil aquosum.</i>                               | + Extractum Opil ( <i>Formula internationalis</i> ).         | Extractum Opil.   | Extractum Opil. Extractum Opil P. I.                   |
| Morphine, 20 per cent.   | General characteristics, color, solubility, 20 per cent morphine.                               | Color, odor, solubility, assay, 20 per cent morphine.        | 20 per cent morphine.   | Color, taste, solubility, assay, 20 per cent morphine. |
| <b>Opil tinctura seu Tinctura Opil.</b>  | TINCTURA DI OPPIO (F. I.). <i>Tinctura opil.</i>  | + Tinctura Opil ( <i>Formula internationalis</i> ).          | Tinctura Opil. Tinctura Opil simplex.   | Tinctura Opil simplex. Tinctura Opil P. I.             |
| 10 per cent.   | Same as P. I.   | Same as P. I.  | Same as P. I.   | Same as P. I.  |
| Alcohol (70 per cent).   | do.   | do.  | Diluted alcohol and distilled water.  | Diluted alcohol and water.                             |
| Morphine, 1 per cent.  | Color, odor, taste, chemical tests, 1 per cent morphine.  | Color, 1 per cent morphine, assay.                           | 1 per cent morphine.  | Color, odor, taste, assay, 1 per cent morphine.        |
| <b>Opil tinctura crocata seu Tinctura Opil crocata seu Laudanum Sydenhami.</b>                       | Not official.   | + Tinctura Opil crocata ( <i>Formula internationalis</i> ).  | Tinctura Opil crocata.  | Tinctura Opil crocata. Tinctura Opil crocata P. I.     |
| 10 per cent opium.   |   | Same as P. I.  | 10 per cent.  | 10 per cent.   |
| Morphine 1 per cent.   |   | Cinnamon water and dilute alcohol.                           | Diluted alcohol and distilled water.  | Diluted alcohol and water.                             |
|  |   | Color, morphine, 1 per cent.                                 | 1 per cent morphine.  | Color, odor, taste, assay, 1 per cent morphine.        |

|   |  |   |  |  |
|---|--|---|--|--|
| Opil et Ipecacuanha pulvis compositus seu Pulvis Doveri.  | POLVUS DE DOWNS (F. I.).<br>Pulvis Doveri.   | + Pulvis Doveri. Pulvis Ipecacuanha cum Opio (Formula Internationalis).             | Pulvis Ipecacuanha opistatus. Pulvis Doveri.   | Pulvis Ipecacuanha opistatus. Pulvis Doveri P. I.                          |
| To contain 10 per cent of powdered opium.   | Same as P. I.  | Same as P. I.   | Same as P. I.                                  | Same as P. I.  |
| Opil tinctura benzoea seu Tinctura Opil benzoea.  | Not official.  | Not official.   | Tinctura Opil benzoea. Elixir paregoricum.     | Tinctura Opil benzoea. Tinctura Opil benzoea P. I.                         |
| Morphine 0.05 per cent.   |  |   | 0.05 per cent morphine.                        | Color, odor, taste, 0.05 per cent morphine.                                |
| Strophanthi tinctura seu Tinctura Strophanthi.  | TINCTURA DI STROFANTO (F. I.).<br>Tinctura strophanthi.                                  | + Tinctura Strophanthi (Formula Internationalis).                                   | Tinctura Strophanthi.                          | Tinctura Strophanthi. Tinctura Strophanthi P. I.                           |
| 10 per cent.  | Same as P. I.  | Same as P. I.   | Same as P. I.                                  | Same as P. I.  |
| Alcohol (70 per cent).  | do.  | do.   | do.  | Do.  |
| Seeds not to be freed from fat.   | Color, taste, reaction, solubility.  | Color, specific gravity, extract content, chemical test.                            | Chemical test.                                 | Color and taste.   |
| Secale cornutum seu Ergotum Secale.   | SECALA CORNUA (F. I.). <i>Secale cornutum</i> .  | + Secale cornutum.  | Secale cornutum.                               | Secale cornutum. Secale cornutum P. I.                                     |
| Not to be more than 1 year old and to be kept whole.  | General characteristics, reaction, not more than 5 per cent ash, to be renewed annually. | General and microscopical characteristics, extract content, to be renewed annually. | General description.                           | Ergot of rye, not to be kept for more than 1 year.                         |
| Secalis cornuti extractum seu Extractum Secalis cornuti; Ergoti extractum seu Extractum Ergoti.                                 | EXTRACTO DI SECALA CORNUA<br>IDROALCOOLICO (F. I.). <i>Extractum secalis cornuti</i> .   | + Extractum Secalis cornuti spissum (Formula Internationalis).                      | Extractum Secalis cornuti. Ergotinum Bonjeani. | Extractum Secalis cornuti. Extractum Secalis cornuti P. I.                 |
| Prepare a watery extract and make up with alcohol (60 per cent).  | Extract with water, treat with alcohol.  | Extract with chloroform water, treat with alcohol.                                  | Extract with water, treat with alcohol 70°.    | Extract with water, treat with alcohol. Color, odor, solubility.           |
| Secalis cornuti extractum fluidum seu Extractum fluidum Secalis cornuti; Ergoti extractum fluidum seu Extractum fluidum Ergoti. | EXTRACTO DI SECALA CORNUA LIQUIDO (F. I.). <i>Extractum secalis cornuti liquidum</i> .   | + Extractum Secalis cornuti fluidum (Formula Internationalis).                      | Extractum Secalis cornuti fluidum.             | Extractum Secalis cornuti fluidum. Extractum fluidum Secalis cornuti P. I. |
| 100 per cent.   | Same as P. I.  | Same as P. I.   | Same as P. I.                                  | Same as P. I.  |
|   | Glycerin 5, Alcohol 90° 20, water 20.  | Glycerin, cinnamon water, alcohol.  | Mixture of water 8, alcohol 2.                 | Mixture of water 4, alcohol 1.   |
|   | After preliminary treatment with petroleum benzine.                                      | Color, odor, specific gravity.  |  | Color, odor, solubility.   |

Comparative table showing degree of compliance in the several pharmacopæias published in 1909 and 1910, etc.—Continued.

| Protocol International.  | Ph. Ital. III.  | Ph. Hung. III.   | Ph. Russ. VI.  | Ph. Germ. V.  |
|--|---|--|--|---|
| Acidum hydrocyanicum dilutum....   | ACIDO CIANDRICO ( <i>Soluzione</i> ) (F. I.) <i>Acidum cyanhydricum</i> .<br>Chemical tests; assay, 2 per cent HCN.                 | Not official.....  | Not official.....  | Not official.   |
| Strength 2 per cent.....   |   |  |  |   |
| Amygdale amare aque seu Aqua Amygdale amare.   | AQUA DISTILLATA DI MANDORLE AMARE (F. I.). <i>Aqua destillata amygdalarum amararum</i> .<br>Chemical tests; assay 0.1 per cent HCN. | + Aqua amygdalarum amararum.<br>Appearance, odor, specific gravity, assay, 0.1 per cent HCN.               | Aqua Amygdalarum amararum....<br>Assay, 0.1 per cent HCN.            | Aqua Amygdalarum amararum.<br>Aqua Amygdale amare P. I.<br>0.099 to 0.107 per cent HCN.     |
| Strength 0.10 per cent.....  |   |  |  |   |
| Leucocerasi aqua seu Aqua Leucocerasi.   | Not official.....   | Not official.....  | Not official.....  | Not official.   |
| Strength 0.10 per cent.....  |   |  |  |   |
| Phenoli solutio seu Aqua Phenolista.   | AQUA FENICA (F. I.). <i>Aqua phenolica</i> .<br>Same as P. I.   | Aqua carbolicata ( <i>Formule internationale</i> ).<br>Same as P. I.                                       | Not official.....  | Aqua carbolicata. Aqua phenolista P. I.   |
| Strength 2 per cent.....   |   |  |  |   |
| Arsenas sodii seu Sodii arsenas; Arsenicum natrium seu Natrium arsenicum.            | ARSENIATO BISMIDICO (F. I.). <i>Arenitas binatrica</i> .<br>7 molecules of water, chemical tests, assay.                            | Not official.....  | Not official.....  | Same as P. I.<br>Not official.  |
| The crystallized salt containing 36.86 per cent of arsenic acid.                     |   |  |  |   |
| Arsenicalis liquor Fowleri seu Liquor Arsenicalis Fowleri seu Kali Arsenicos liquor. | L'LIQORE ARSENICALE DEL FOWLER (F. I.). <i>Liquor arsenicalis Fowleri</i> .<br>Same as P. I. Assay.....                             | ++ Solutio arsenicalis Fowleri.<br>Same as P. I. Assay.....  | Liquor Kali arsenicos. Solutio arsenicalis Fowleri.<br>Same as P. I. | Liquor Kali arsenicos. Liquor arsenicalis Fowleri P. I.<br>Same as P. I. Assay.             |
| Strength in arsenious acid 1 per cent.   |   |  |  |   |
| Ferri iodidi sirupus seu Sirupus iodeti ferrosi seu Sirupus ferri iodati.            | SCIROPO DI JODURO FERROSO (F. I.). <i>Sirupus protoiodurati ferri</i> .<br>5 per cent ferrous iodide, method of keeping.            | + Syrupus Ferri Iodati. ( <i>Formule internationale</i> ).<br>Same as P. I. Color, taste, reaction, assay. | Sirupus Ferri Iodati.....<br>Assay, 5 per cent ferrous iodide....    | Sirupus Ferri Iodati. Sirupus Ferri Iodati P. I.<br>About 5 per cent ferrous iodide, assay. |
| Strength in anhydrous ferrous iodide 5 per cent.                                     |   |  |  |   |

|   |  |  |   |  |  |   |
|---|--|--|---|--|--|---|
| Cantharidis tinctura seu Tinctura Cantharidis.                                |  |  |   |  | Tinctura Cantharidum.                        | Tinctura Cantharidum.   |
| 10 per cent.  | Tinctura di Cantharidi (F. I.).<br>Tinctura cantharidis.                   | Same as P. I.  | Same as P. I.   | Same as P. I.                                | Same as P. I.                                | Cantharidis P. I.   |
| Alcohol (70 per cent.)  | do.  | do.  | do.   | do.  | do.  | Do.   |
|   |  |  |   |  |  | Color, odor, taste.   |
| Iodi tinctura seu Tinctura Iodii.   | SOLUZIONE ALCOOLICA DI IODO (F. I.). <i>Solutio alcoholica iodi.</i>       |  | Tinctura Jodi.  | Tinctura Jodi.                               | Tinctura Jodi.                               | Tinctura Jodi P. I.   |
| 10 per cent.  | Same as P. I.  | Same as P. I.  | Same as P. I.   | Same as P. I.                                | Same as P. I.                                | Same as P. I.   |
| Alcohol (66 per cent.)  | do.  | do.  | do.   | do.  | do.  | Alcohol (Ph. Germ.).  |
|   | Color, solubility, assay.  | Color, specific gravity, assay.                                  | Color, specific gravity, assay.                         | Specific gravity. Assay.                     | Specific gravity. Assay.                     | Color, odor, specific gravity; assay, not less than 9.4 per cent free iodine. |
| Lobeliae tinctura seu Tinctura Lobeliae.                                      | TINCTURA DI LOBELIA (F. I.).<br>Tinctura lobeliae.                         |  | +Tinctura Lobeliae. ( <i>Formula internationalis.</i> ) | Not official.                                |  | Tinctura Lobeliae.  |
| 10 per cent.  | Same as P. I.  | 6 per cent.  | Same as P. I.   |  |  | lise P. I.  |
| Alcohol (70 per cent.)  | do.  | Color, specific gravity, extract content.                        | Color, specific gravity, extract content.               |  |  | Same as P. I.   |
|   | Color, reaction.   |  |   |  |  | Do.   |
|   |  |  |   |  |  | Color, odor, taste.   |
| Coccalinum Hydrochloricum.  | CLORIDATO DI COCAINA (F. I.).<br><i>Chlorhydras cocaine.</i>               |  | +Coccalinum hydrochloricum.                             | Coccalinum hydrochloricum & hydrochloratum.  | Coccalinum hydrochloricum.                   | Coccalinum hydrochloricum. Coccalinum hydrochloratum P. I.                    |
| The anhydrous salt.   | The anhydrous salt, melts at from 181.6° to 185° C. Chemical tests, assay. | The anhydrous salt, melting point 183° C. Chemical tests, assay. |   | Melting point 184° C.                        | Melting point 183° C. anhydrous salt.        | Melting point 183° C. anhydrous salt.   |
| Hydragryi unguentum seu Unguentum Hydragryi.                                  | POMATA MERCURIALE (F. I.).<br><i>Pomatum hydrargyricum.</i>                | Unguentum Hydragryi. ( <i>Formula internationalis.</i> )         | Unguentum Hydragryi cinereum.                           | Unguentum Hydragryi cinereum.                | Unguentum Hydragryi cinereum.                | Unguentum Hydragryi cinereum.   |
| 30 per cent.  | Same as P. I.  | Same as P. I.  | Same as P. I.   | Same as P. I.                                | Same as P. I.                                | Same as P. I.   |
| Antimoniale vinum seu Vinum Antimoniale; Stibiatum vinum seu Vinum Stibiatum. | VINO STIBIATO (F. I.).<br><i>Vinum stibiatum.</i>                          | Color, physical properties, assay.                               | +Vinum stibiatum. ( <i>Formula internationalis.</i> )   | Vinum Stibiatum. Vinum Stibio-Kall tartarid. | Vinum Stibiatum. Vinum Stibio-Kall tartarid. | Color, general appearance, assay. Vinum stibiatum. Vinum stibiatum P. I.      |
| In tartar emetico 0.40 per cent.  | Same as P. I.  | Same as P. I.  | Same as P. I.   | Same as P. I.                                | Same as P. I.                                | Same as P. I.   |
|   |  | Color, chemical reaction.  |   |  |  | Color.  |

### 3. SURVEY OF COMPLIANCE WITH PROVISIONS OF BRUSSELS CONFERENCE PROTOCOL.

*Table presenting a survey of the compliance with the provisions of the Brussels Conference Protocol as shown in the pharmacopœias published from 1905 to 1910.*

Abbreviations used: + = official; O = not official; C = compliance; N = non-compliance; ? = incomplete or doubtful compliance.

| International protocol, titles and requirements. | U. S. P.<br>VIII. | Ph.<br>Hisp.<br>VII. | Ph.<br>Ndl.<br>IV. | Ph.<br>Aust.<br>VIII. | Ph.<br>Belg.<br>III. | Ph.<br>Japon.<br>II. | Ph.<br>Helv.<br>IV. | Ph.<br>Dan.<br>VII. | Ph.<br>Fr. V. | Ph.<br>Svec.<br>IX. | Ph.<br>Serb.<br>II. | Ph.<br>Ital.<br>III. | Ph.<br>Hung.<br>III. | Ph.<br>Russ.<br>VI. | Ph.<br>Germ.<br>V. |
|--|-------------------|----------------------|--------------------|-----------------------|----------------------|----------------------|---------------------|---------------------|---------------|---------------------|---------------------|----------------------|----------------------|---------------------|--------------------|
| <b>Aconiti tuber</b> .....                       | +                 | +                    | +                  | O                     | +                    | +                    | +                   | O                   | +             | O                   | O                   | +                    | O                    | +                   | +                  |
| Requirement.....                                 | ?                 | C                    | C                  | .....                 | ?                    | +                    | C                   | .....               | C             | .....               | .....               | C                    | .....                | C                   | C                  |
| <b>Tinctura Aconiti</b> .....                    | +                 | +                    | +                  | O                     | +                    | +                    | +                   | O                   | +             | O                   | O                   | +                    | O                    | +                   | +                  |
| Strength.....                                    | ?                 | C                    | C                  | .....                 | C                    | C                    | C                   | .....               | C             | .....               | .....               | C                    | .....                | C                   | C                  |
| <b>Menstruum</b> .....                           | ?                 | C                    | C                  | .....                 | C                    | C                    | C                   | .....               | C             | .....               | .....               | C                    | .....                | C                   | .....              |
| Requirement.....                                 | C                 | C                    | C                  | .....                 | C                    | ?                    | C                   | .....               | C             | .....               | .....               | C                    | .....                | C                   | .....              |
| <b>Belladonna folium</b> .....                   | +                 | +                    | +                  | +                     | +                    | +                    | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Requirement.....                                 | C                 | C                    | C                  | +                     | +                    | +                    | +                   | C                   | C             | C                   | C                   | C                    | C                    | C                   | C                  |
| <b>Tinctura Belladonnae</b> .....                | +                 | +                    | +                  | +                     | +                    | O                    | +                   | O                   | +             | O                   | +                   | +                    | +                    | +                   | +                  |
| Strength.....                                    | ?                 | C                    | C                  | C                     | C                    | .....                | C                   | .....               | C             | .....               | .....               | C                    | C                    | C                   | .....              |
| <b>Menstruum</b> .....                           | N                 | C                    | C                  | C                     | C                    | .....                | C                   | .....               | C             | .....               | .....               | C                    | C                    | C                   | .....              |
| <b>Extractum Belladonnae</b> .....               | +                 | O                    | O                  | +                     | +                    | O                    | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Menstruum and requirement                        | ?                 | .....                | .....              | .....                 | .....                | .....                | .....               | .....               | .....         | .....               | .....               | .....                | .....                | .....               | .....              |
| <b>Colchici semen</b> .....                      | +                 | +                    | +                  | +                     | +                    | .....                | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Requirement.....                                 | C                 | C                    | C                  | +                     | C                    | .....                | C                   | C                   | C             | C                   | C                   | C                    | C                    | C                   | C                  |
| <b>Tinctura Colchid.</b> .....                   | +                 | +                    | +                  | +                     | +                    | +                    | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Strength.....                                    | ?                 | C                    | C                  | +                     | C                    | .....                | C                   | C                   | C             | C                   | C                   | C                    | C                    | C                   | C                  |
| <b>Menstruum</b> .....                           | N                 | C                    | C                  | C                     | C                    | .....                | C                   | C                   | C             | C                   | C                   | C                    | C                    | C                   | C                  |
| <b>Digitalis folium</b> .....                    | +                 | +                    | +                  | +                     | +                    | +                    | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Requirement.....                                 | C                 | C                    | C                  | +                     | C                    | .....                | C                   | C                   | C             | C                   | C                   | C                    | C                    | C                   | C                  |
| <b>Tinctura Digitalis</b> .....                  | +                 | +                    | +                  | +                     | +                    | +                    | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Strength.....                                    | ?                 | C                    | C                  | +                     | C                    | .....                | C                   | C                   | C             | C                   | C                   | C                    | C                    | C                   | C                  |
| <b>Menstruum</b> .....                           | N                 | C                    | C                  | C                     | C                    | .....                | C                   | C                   | C             | C                   | C                   | C                    | C                    | C                   | C                  |
| <b>Ipocaccanthe radix</b> .....                  | +                 | +                    | +                  | +                     | +                    | +                    | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Requirement.....                                 | ?                 | .....                | .....              | .....                 | .....                | .....                | .....               | .....               | .....         | .....               | .....               | .....                | .....                | .....               | .....              |





Table presenting a survey of the compliance with the provisions of the Brussels Conference Protocol, etc.—Continued.

| International protocol, titles and requirements. | U. S. P.<br>VIII. | Ph.<br>Hisp.<br>VII. | Ph.<br>Ndl.<br>IV. | Ph.<br>Austr.<br>VIII. | Ph.<br>Belg.<br>III. | Ph.<br>Japon.<br>III. | Ph.<br>Helv.<br>IV. | Ph.<br>Dan.<br>VII. | Ph.<br>Fr. V. | Ph.<br>Svec.<br>IX. | Ph.<br>Serb.<br>II. | Ph.<br>Ital.<br>III. | Ph.<br>Hung.<br>III. | Ph.<br>Russ.<br>VI. | Ph.<br>Germ.<br>V. |
|--|-------------------|----------------------|--------------------|------------------------|----------------------|-----------------------|---------------------|---------------------|---------------|---------------------|---------------------|----------------------|----------------------|---------------------|--------------------|
| Tinctura Opil benzolca.....                      | +                 | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Requirement.....                                 | ?                 | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Tinctura Strophanthi.....                        |                   | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Strength.....                                    | ?                 | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Menstruum.....                                   | ?                 | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Requirement.....                                 | +                 | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Ergotum Secale.....                              | +                 | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Requirement.....                                 | +                 | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Extractum Ergoti.....                            | ?                 | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Requirement.....                                 | +                 | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Extractum fluidum Ergoti.....                    | +                 | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Strength.....                                    | ?                 | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Acidum hydrocyanicum dilutum.....                | +                 | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Strength.....                                    | +                 | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Aqua Amygdale amare.....                         | +                 | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Strength.....                                    | N                 | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Aqua Laurocerasi.....                            | O                 | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Strength.....                                    |                   | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Aqua Phenolata.....                              | O                 | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Strength.....                                    |                   | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Sodii arsenas.....                               | +                 | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Requirement.....                                 | ?                 | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Liquor Arenalcalis Fowleri.....                  | +                 | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Strength.....                                    | +                 | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Sirupus ferri iodati.....                        | +                 | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Strength.....                                    | +                 | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Tinctura Cantharidis.....                        | +                 | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Strength.....                                    | ?                 | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |
| Menstruum.....                                   | ?                 | +                    | +                  | +                      | +                    | +                     | +                   | +                   | +             | +                   | +                   | +                    | +                    | +                   | +                  |

|                              |                                 |
|------------------------------|---------------------------------|
| Tinctura Iodi.....           | + C ? + C C + C + C + C         |
| Strength.....                | + C C O ..... + C + C + C       |
| Menstruum.....               | + C C + N C + C + C + C         |
| Tinctura Lobeliae.....       | + C C + C C + C + C + C         |
| Strength.....                | + C C + C C + C + C O .....     |
| Menstruum.....               | O ..... O ..... O ..... + C + C |
| Cocculum Hydrochloricum..... | + C C + C C + C + N O .....     |
| Requirement.....             | + C C + C C + C + C O .....     |
| Unguentum Hydragryi.....     | + C C + C C + C + C + C         |
| Strength.....                | + N C + C C + C + ? + C         |
| Vinum Antimoniale.....       | + C C + C C + C + C + C         |
| Strength.....                | + C C O ..... + C + C + C       |
|                              | + C C + C C + C + C + C         |
|                              | O ..... + C C + C + C + C       |
|                              | + N C + ? N + C + N + C         |

## 4. DROPS AND DROPPERS.

An editorial (Bull. Pharm., 1909, v. 23, pp. 402-403) comments on the confusion existing between drops and minims, and calls attention to some of the efforts that have been made toward correcting the existing assumption that drops and minims are identical.

Traube, J., criticizes the proposition to adopt the international drop counter, and points out that not all dropping devices, with a dropping surface of 3 mm. in diameter, will yield 20 drops of water to a gramme.—Pharm. Ztg., Berl., 1909, v. 54, p. 203.

An unsigned article points out that the Ph. Hung. III directs that for the counting of drops the normal drop counter as described in the Brussels Conference Protocol is to be used.—Ztschr. d. allg. österr. Apoth.-Ver., Wien, 1909, v. 47, p. 584.

Bachfeld & Co., Frankfurt a. M. (D. R. P. 211977 vom 6. Januar, 1909) describe and illustrate a pipette which can be regulated so as to insure drops of constant weight.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 429.

## 5. OFFICIAL MEDICINAL WINES AND WINES OF POTENT DRUGS.

*Table showing the number of official medicinal wines and the wines of potent drugs; also the titles for alcohol, distilled liquors, and wines included in the several pharmacopœias.*

(From Proc. XII Int. Cong. on Alcoholism, p. 292.)

| Pharmacopœias.   | No. of wines. | Wines of potent drugs.                                 | Titles and specific gravities of alcohol.   | Titles of distilled liquors.  | Titles of wines.  |
|------------------|---------------|--|---|---|---|
| Ph. Brit. IV ... | 4             | Colch. Corm.<br>Ipecacuanha.                           | A. Absolutum, 0.794.....  | S. V. Gallici<br>(dist. from wine).                                   | V. Aurantii.  |
| U. S. P. VIII... | 8             | Coca, Colch.<br>seed, Ergot,<br>I p e c a c,<br>Opium. | S. Rectificatus, 0.834.....<br>A. Absolutum, 0.797.....<br>Alcohol, 0.816.....<br>A. Dilutum, 0.836.....  | S. Frumenti...<br>S. Vini Gallici.                                    | V. Xericum.<br>V. Album.<br>V. Rubrum.  |
| Ph. Hisp. VII..  | 15            | Opium, Coca..  | A. Anhydram, 0.794.....   |   | Vinum (general description).  |
| Ph. Ndl. IV....  | 11            | Colch. seed<br>Ipecacuanha.                            | Alcohol, 95°, 0.8161.....<br>Alcohol, 60°.....<br>A. Absolutus, 0.794-0.799.....<br>S. Fortior, 0.8159.....<br>Spiritus, 0.8338.....<br>S. Dilutus, 0.8997.....<br>Spiritus, 0.816-0.820..... |   | V. Malacense.   |
| Ph. Belg. III... | 1             |  |   |   | Vina (general description).   |
| Ph. Austr. VIII. | 6             |  | A. Absolutus, 0.798-0.800.....  | S. Vini Cognac<br>(obtained from wine).                               | Vinum.  |
| Ph. Japon. III.. | 8             | Colch. seed,<br>Ipecacuanha<br>Opium.                  | S. Vini, 0.830-0.834.....<br>S. Vini Dilutus, 0.892-0.896.....<br>A. Absolutus, 0.786-0.800.....  |   | V. Album.<br>V. Malag. Aur.<br>V. Rubrum.   |
| Ph. Helv. IV...  | 11            | Coca.....  | Spiritus, 0.830-0.834.....<br>S. Dilutus, 0.892-0.896.....<br>A. Absolutus, 0.796.....<br>Spiritus, 0.834-0.830.....<br>S. Dilutus, 0.892-0.895.....  | Spiritus e.....<br>Saccharo.....<br>Spiritus e.....<br>Vino (Cognac). | Vinum.<br>V. Album.<br>V. Merid. Ast.<br>V. Merid. Dulce<br>V. Rubrum.<br>V. Spumans. |
| Ph. Dan. VII...  | 2             |  | A. Absolutus, 0.796-0.800.....<br>S. Alcoholisatus, 0.812-0.816.....<br>S. Dilutus, 0.890-0.895.....  |   |   |

Table showing the number of official medicinal wines and the wines of potent drugs, etc.—Continued.

| Pharmacopœias.    | No. of wines. | Wines of potent drugs. | Titles and specific gravities of alcohol.  | Titles of distilled liquors. | Titles of wines.             |
|-------------------|---------------|------------------------|--|------------------------------|------------------------------|
| Ph. Fr. V.....    | 10            | Coca, Digitalis        | A. Absolutus, 0.79433.....<br>S. Rectificatissimus, 0.81602.....   |                              | V. Medicinalia.              |
| Ph. Svec. IX....  | 4             | Opium.....             | A. Absolutus, 0.7955-0.8005.....<br>S. Concentratus, 0.831-0.8335.....<br>S. Dilutus, 0.889-0.891.....<br>S. Temis, 0.934-0.938.....   |                              | V. Marsala.                  |
| Ph. Serb. II....  | 5             |                        | A. Absolutus, 0.796-0.800.....<br>Spiritus, 0.830-0.834.....<br>S. Dilutus, 0.892-0.896.....   |                              | V. Rubrum.<br>V. Xerense.    |
| Ph. Ital. III.... | 4             | Digitalis compositum.  | A. Assoluto, 0.800.....  |                              | V. di Marsala (V. Marsale).  |
| Ph. Hung. III..   | 3             |                        | Alcool di 95-90°.....<br>Alcool di 80-70-60°.....<br>A. Absolutus, 0.795-0.799.....<br><br>S. Concentratus, 0.834-0.835.....<br>S. Concentratissimus, 0.8125-0.8200.....<br>S. Dilutus, 0.890-0.891.....<br>S. Vini 95°-0.816-0.813..... |                              | V. Medicamentosa.            |
| Ph. Rus. VI....   | 3             |                        | S. Vini 90°-0.834-0.831.....<br>S. Vini 70°-0.890-0.888.....<br>S. Vini 38°-0.955-0.952.....<br>A. Absolutus-0.796-0.797.....  |                              | Vinum (general description). |
| Ph. Germ. V....   | 5             |                        | Spiritus-0.830-0.834.....<br>S. Dilutus-0.892-0.896.....   | Spiritus e Vino.             | Vinum (general description). |

## 2. FOREIGN PHARMACOPŒIAS.

### 1. ITALIAN.

Farmacopea Ufficiale, Roma, 1909. This Pharmacopœia contains xiv + 452 small 8vo. pages. It is printed in Italian, and the monographs are arranged alphabetically according to the Italian titles with the Latin titles (in italics) as synonyms. The official portion of the book includes a total of 659 titles—18 general headings, 175 drugs, 195 chemicals, and 271 pharmaceutical preparations.

An "Elenco" of medical specialties occupies an additional 33 pages and includes a number of titles and subtitles of pharmaceutical specialties or proprietary preparations that have been accorded quasi recognition by being described in the pages of the pharmacopœia. This portion of the book also includes a list of reagents and volumetric solutions, a list of the necessary utensils for carrying out the prescribed tests, an alcohol table, a table showing the relation between specific gravity and degree Baumé, tables of potent medicaments, and a table showing the number of drops of official liquids required to weigh 1 gm. and the approximate weight of a single drop. The "Elenco" also contains a table of maximum doses, a reprint of the Protocol of the Brussels Conference, and an index covering 28 double pages.

The preliminary notices include the statement that ordinary temperature is to be understood as 15° C., and specific gravity and other physical constants of official substances are to be determined at ordinary temperature, unless otherwise specified. Maceration is to be conducted at from 15° to 35° C., and digestion at from 35° to 65° C. Parts are defined as parts by weight, and the atomic weights given are based on the international atomic weight table for 1908, O=16.

The provisions of the Brussels Conference Protocol have been generally included and the international standard preparations are uniformly designated (F. I.) to indicate that they comply with the requirements of the "formolo internazionale."

The Italian correspondent (*Lancet*, 1909, v. 177, p. 1037) calls attention to the regulations issued by the Minister of the Interior with reference to the new Italian Pharmacopœia, and adds that while they may seem to the outer world rather meticulous, no one familiar with the lay press of Italy and the frequent (sometimes fatal) "sbagli" or mistakes it records can be other than thankful that the home office has been thus minute and precise in its surveillance of the pharmacist's metier.

*Boll. chim. farm.* (Milan, 1909, v. 48, p. 693) quotes the royal decree with reference to the third edition of the Italian Pharmacopœia.

Forrester, G. P., points out that in Italy a table of maximum doses is existent, and the law states that when a medical man prescribes poisons in dangerous or nonmedicinal doses, the pharmacist shall demand that he denote on the prescription itself that he (the doctor) assumes himself the responsibility, and must also indicate the use to which it is intended.—*Chem. & Drug.*, Lond., 1909, v. 75, p. 346.

## 2. HUNGARIAN.

*Pharmacopœa Hungarica*, Editio Tertia, is the Latin title of the Hungarian Pharmacopœia, published in Budapest in 1909. The book is published in the vernacular and in Latin, paged separately though bound in one volume. The Hungarian portion of the book contains xx + 414 8vo. pages and the Latin portion xiii + 424 pages; 4 pages of corrections are appended. The monographs include a total of 534 titles—17 general headings, 152 drugs (13 animal drugs), 171 chemicals, and 194 pharmaceutical preparations. The provisions of the Brussels Protocol are generally complied with. In the prefatory pages, general directions are given for determining physical constants of chemicals and the chemical constants of fat and oils. The preface also includes general directions for sterilizing instruments and medicaments. A table of reagents and volumetric solutions is appended, as well as a list of the utensils and apparatus necessary to apply the official tests. The remaining tables include a list of maxi-

mum single and daily doses, a list of articles to be kept separately, a table showing the number of drops of official substances required to weigh 1 gm., also the approximate weight of a single drop. Several tables showing the specific gravity of various concentrations of a number of official substances are also included, as is a table of atomic weights, based on O=16, and an index.

An editorial (*Am. Druggist*, N. Y., 1909, v. 55, p. 335-336) discusses the new Hungarian Pharmacopœia, and calls attention to the additions and changes that have been made.

Vondrasek, J., presents a comprehensive review of the innovations included in the Ph. Hung. III.—*Pharm. Post*, Wien, 1909, v. 42, p. 770 ff.

v. Bókay, Árpád, presents a review of the new Ph. Hung. III, and calls attention to the method of preparing the Pharmacopœia, some of the principles that are involved, the new remedies included, and the articles omitted.—*Ibid.*, pp. 705-706.

An unsigned article reviews the Ph. Hung. III, and calls attention to many of the novel features embodied therein.—*Ztschr. d. allg. österr. Apoth.-Ver.*, Wien, 1909, v. 47, pp. 448 ff.

A news note (*Ztschr. d. allg. österr. Apoth.-Ver.*, Wien, 1909, v. 47, p. 406) calls attention to some of the changes that have been embodied in the Ph. Hung. III, and enumerates the new articles that have been admitted.

Kremers, Edward, states that the third edition of the Hungarian Pharmacopœia has just been published by the minister of the interior of that country, and comments on the method of supplying the book to apothecaries.—*Midl. Drug.*, 1909, v. 43, p. 545.

A news note (*Ztschr. d. allg. österr. Apoth.-Ver.*, Wien, 1909, v. 47, p. 430) points out that the selling price of the Ph. Hung. III has been fixed at 12 K, and that all proprietors of pharmacies in Hungary will be furnished with a copy of the book and required to pay the above amount, which is practically cost price.

Gehe & Co. (*Handelsbericht*, 1909, p. 45) state that the Hungarian Pharmacopœia is to become official from July 1, 1909, and that the book itself contains numerous changes.

Wilbert, M. I., notes that the new Hungarian Pharmacopœia was exhibited before Section V of the Sixteenth International Medical Congress, held at Budapest, and attracted considerable attention. The new book becomes official on January 1, 1910, by which time it must be in possession of every apothecary, physician, and veterinarian in the Kingdom of Hungary. The book is said to be modern in every respect and to compare well with other pharmacopœias that have been published during recent years.—*Am. J. Pharm.*, Phila., 1909, v. 81, p. 585.

## 3. RUSSIAN.

The sixth edition of the Russian Pharmacopœia was published at St. Petersburg in 1910. It is printed in the vernacular and contains a total of viii+591 pages. The introductory pages contain a table of contents and preface and the reprint of the Brussels Conference Protocol. Five hundred and four pages are devoted to the official monographs, arranged alphabetically according to the Latin title. This portion of the book contains a total of 617 titles—26 general headings, 179 drugs, 193 chemicals, and 219 pharmaceutical preparations. The reagents and volumetric solutions required are described at some length, and a table of the apparatus necessary to apply the official tests is also included. The appendix includes a list of articles to be kept under lock and key and those to be kept separate from others; also, a table of maximum single and daily doses for adults, with the indication of proportionate limitations for children of varying ages. The table of specific gravities of the more important official liquids is followed by an index of the Latin titles, occupying 17 double-column pages, while the index of the Russian titles covers 18 double pages. The nomenclature of the Latin titles is similar to that of the German Pharmacopœia.

It is interesting to note that, while the formula for sirup of ipecac directs 10 parts of tincture of ipecac to 90 parts of simple sirup, the tincture of ipecac is not included in the list of official tinctures.

## 4. GERMAN.

Deutsches Arzneibuch, 5 Ausgabe 1910, is the official and, so far as the book itself is concerned, the only title of the new German Pharmacopœia. The book contains xxxviii+680 pages. The preface reviews the method of revising the Pharmacopœia and calls attention to some of the innovations that have been introduced. The provisions of the Brussels Protocol have been adopted practically entire, and the several substances are specially designated by the addition of the letters P. I. to the international titles, which appear as synonyms for, or duplications of, the established Latin title. The preface also includes a list of the substances that have been added to the Pharmacopœia, also a list of the articles that have been deleted, and a list of the changes in nomenclature. A total of 575 pages is devoted to the official monographs, which include 671 titles—34 general headings, 191 drugs, 202 chemicals, and 244 pharmaceutical preparations.

In connection with a number of official articles, the required purity or content of active ingredient is given immediately before the description and tests. The revision committee points out that these requirements are generally given as round numbers and are primarily

for the convenience of physicians who wish to acquaint themselves as to the required purity or active ingredient content of any given substance. The more detailed requirements are indicated by the tests or are given in the concluding paragraphs of the official descriptions.

Whenever practicable chemical substances are described by the chemical formulas, and the atomic and molecular weights are given.

In connection with the botanical nomenclature, the provisions of the Vienna Code are generally followed. The microscopical characteristics, introduced in the German Pharmacopœia for 1900, have been elaborated on, and the present edition can be considered as representing the most satisfactory requirements practicable at the present time. The number of assays for pharmaceutical preparations has been increased, but no attempt has been made systematically to provide tests for the identity and purity of official articles of this type. As mentioned above, the provisions of the Brussels Protocol are generally adhered to, an exception being made only in connection with the method of making tinctures and in the strength of the menstruum for tincture of iodine. In connection with lard, suet, brandy, and wine, no tests are given, and these articles are required to conform with the requirements embodied in a special law. A list of reagents and volumetric solutions for clinical examinations has been appended, so as to secure uniformity in their preparation, composition, and purity. The chapter on general determinations presents a number of definitions regarding solutions and solubilities, residue on evaporation, specific gravity, temperature, degree of comminution, drops, preparation of pharmaceutical preparations, and sterilization. A number of general methods for determining physical and chemical constants are also defined. The appended tables include a list of the atomic weights of the elements mentioned in the Pharmacopœia, a list of the reagents and volumetric solutions necessary for applying the official tests, a list of reagents and volumetric solutions for clinical purposes, a review of the changes of specific gravity of various official liquids occurring between 12° and 25° C., a table of maximum single and daily doses, a list of potent medicaments, a list of synonyms, and a list of the official German names.

"Fr. Kr." discusses the nomenclature of the Ph. Germ. and points out a number of inconsistencies.—Apoth. Ztg., Berl., 1909, v. 24, p. 688.

Richter, Ernst, presents a number of suggestions for additions and changes in the Ph. Germ.—*Ibid.*, p. 667.

Weichelt, W., presents a number of suggestions for the improvement of the Ph. Germ.—*Ibid.*, pp. 605-609, 624-625, 637-639, 675-677.



Schimmel & Co. (Semi-Annual Report, October, 1909, p. 133), call attention to a number of suggestions made by H. v. Soden (Pharm. Ztg. 54, 1909, 249) elaborating on the insufficient indications of the Ph. Germ. IV on the subject of essential oils and their examination, and present a number of references to matters in which there are discrepancies between v. Soden's findings and their own.

Stoepel, Paul, presents a number of suggestions on approximate dose measures and drops.—Apoth. Ztg., Berl., 1909, v. 24, p. 959.

Forrester, G. P., points out that the list of maximum doses contained in the Ph. Germ. applies only to adults. A higher dose may be dispensed when it is followed by an exclamation mark. Should this sign be wanting, the dispenser must communicate with the doctor. Many of the different States of the German Empire have special regulations regarding the limitations of dispensing when the dosage exceeds the maximum of the Pharmacopœia.—Chem. & Drug., Lond., 1909, v. 75, p. 346.

#### 5. AUSTRIAN.

Schamelhout, A., notes that the Ph. Austr. does not comply with the decisions of the Brussels Conference as to the morphine content of powdered opium.—Bull. Soc. roy. d. pharm. Brux., 1909, v. 53, p. 298.

#### 6. BELGIAN.

Schamelhout, A., says that none of the pharmacopœias have complied rigorously with the decisions of the Brussels Conference, not even excepting the Ph. Belg., and calls attention to some of the important particulars in which the latter does not.—Bull. Soc. roy. d. pharm. Brux., 1909, v. 53, p. 296.

The same author compares the requirements of the Ph. Fr. V with those of the Ph. Belg. and the National [Belgian] Formulary.—*Ibid.*, pp. 5-15, 54-57, 69-84.

He also calls attention to the fact that of the nine members composing the permanent commission on the Pharmacopœia, just announced by royal decree, but one is a practicing pharmacist.—*Ibid.*, p. 62.

Forrester, G. P., points out that the Belgian Pharmacopœia contains a list of maximum doses, both for single doses and total amount administered in 24 hours, and, if the prescriber wishes to overstep the amount given in this table, he must denote his intention either by underlining the dose or placing an exclamation mark after it.—Chem. & Drug., Lond., 1909, v. 75, p. 346.

## 7. BRITISH.

Jones, H. W., presents an interesting contribution on the history of the Ph. Brit.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 573.

An editorial (*Lancet*, 1909, v. 176, p. 633) calls attention to the report of the pharmacopœia committee of the General Medical Council in connection with the revision of the Ph. Brit.

A news note points out that at the annual convention of the Canadian Pharmaceutical Association, held in Toronto on September 1 to 4, 1908, the following resolution was approved and adopted: "As the pharmacopœias are the legal standards for many pharmaceutical galenicals and chemicals that could and should be prepared by every retail pharmacist, if sufficient further information were included in these legal authorities, and as the British Pharmacopœia and Codex Medicamentarius are the legal standards for all preparations contained therein for the Dominion of Canada, be it herein recommended, 'That our committee place the condition before the revision committee of these pharmacopœias with the request that Canadian pharmacists be represented on their committee, in order that the Pharmacopœia may be made more useful as well as legal.'"—*Pharm. J.*, Lond., 1909, v. 29 (83), p. 92.

An editorial (*Brit. & Col. Drug.*, 1909, v. 56, p. 42) points out that, in consideration of the fact that the Ph. Brit. is the legal standard for Canada, it is by no means unreasonable that the pharmacists of the Dominion should in common with those of other portions of Great Britain desire to have a share in its production, and the appointment of a committee of reference for each of the principal colonies would tend to increase the general usefulness and efficiency of the volume as a pan-Britannic authority.

MacAlister, Donald, reports that the Pharmacopœia Committee of the British Medical Council, in discussing the new additions to the Ph. Brit., states that on a number of points it appeared that further inquiries were necessary before definite conclusions could be reached.—*Chem. & Drug.*, Lond., 1909, v. 75, p. 856.

The report of the committee of reference in pharmacy to the General Medical Council is reprinted in abbreviated form. The report itself is published as a pamphlet and can be obtained from Messrs. Spottiswoode & Co. (Ltd.), 5 New Street Square, London, E. C. Price, 1s.; by post, 1s. 1d.—*Ibid.*, 1909, v. 74, pp. 288–292.

An editorial (*Ibid.*, pp. 295) commenting on this report, points out that while not the first, it is in a measure novel in character, in so far as it is the first in which the alterations proposed in the next Pharmacopœia are made public. See also *Pharm. J.*, Lond., 1909, v. 28 (82), pp. 226, 284–286, and *Brit. & Col. Drug.*, 1909, v. 55, p. 190.

"Casual Writer" asserts that, so far as can be judged from the report published, the revision of the Ph. Brit. is to consist largely in future of assimilating the results recorded in the British Pharmaceutical Codex.—Pharm. J., Lond., 1909, v. 28 (82), p. 271.

Hills, Walter, criticizes some of the statements recently made in the Pharmaceutical Journal regarding the British Pharmacopœia revision, and maintains that the statement, that the committee of reference in pharmacy is drawing largely upon the British Pharmaceutical Codex for improved descriptions and formulæ is incorrect, and points out that the report of the committee does not warrant it.—*Ibid.*, p. 380-381.

An editorial (*Ibid.*, p. 323) apologizes for notes on the revision of the British Pharmacopœia, appearing on pages 217 and 271.

Greenish, Henry G., expresses the thanks of the Committee of Reference in Pharmacy to those who have offered criticisms on the committee's report recently published.—*Ibid.*, p. 787. Also, Chem. & Drug., Lond., 1909, v. 74, p. 891.

Tocher, James Fowler, points out that a publication like the British Pharmacopœia can not be the work of one man. It is not and never has been. It is the collected experience of trained men in every department of science coming within its scope.—Chem. & Drug., Lond., 1909, v. 75, p. 207. Also, Year-Book of Pharmacy, Lond., 1909, p. 226.

Wilbert, M. I., calls attention to some of the suggestions that have been made in connection with the British Pharmacopœia, now in course of revision, and points out that the medical men of Great Britain advocate a volume which will deal with medicaments of proved virtue only and will include a minimum number of preparations of such drugs.—Am. J. Pharm., Phila., 1909, v. 81, p. 143.

Crib, C. H., in a book review of Squire's Companion to the British Pharmacopœia, points out that the appearance of a new edition of this well-known work is of some significance, for it may be taken as indicating that a fresh edition of the British Pharmacopœia is not to be expected in the near future.—Analyst, London, 1909, v. 34, p. 253.

"Xrayser" points out that the new edition is overdue. Leaving out of account the 1874 Addendum, we have had, during the last 42 years, only three editions of the Pharmacopœia—namely, in 1868, 1885, and 1898—and, judging from the number of copies of the book now on hand, it is doubtful if we shall see the next edition before the middle of 1911. This will give an average life of 14 years per edition, and for a work of such importance this is far too long.—Chem. & Drug., Lond., 1909, v. 75, p. 895.

"Abel Scholar" presents some additional criticisms on the Ph. Brit.—*Ibid.*, 1909, v. 74, pp. 927-928.

Squire and Caines present a study of the comparative strength of each Brussels Conference Protocol preparation in the Ph. Brit. with its equivalent in the pharmacopœias of 17 other countries to show how far the recommendations have been adopted.—*Ibid.*, p. 877.

An editorial (Pharm. J. Lond., 1909, v. 28 (82), p. 250), commenting on the work that is being done by the committee of reference in pharmacy, points out that the progress is not very rapid, for the report only goes as far as *extractum gentianæ*. The committee has been sitting for a considerable time now, and at the rate they are going it would appear as if a few good years must elapse before the end of the alphabet is reached.

#### 8. DUTCH.

The proposed additions to the Ph. Ndl. IV are reprinted, as are a number of corrections and changes in requirements.—Pharm. Weekblad, 1909, v. 46, pp. 970–989. See also *Ibid.*, pp. 202–205.

Schamelhout, A., notes that the Netherlands Pharmacopœia does not comply with the decisions of the Brussels Conference as to the alkaloidal content of the tincture of aconite.—Bull. Soc. roy. d. pharm. Brux., 1909, v. 53, p. 298.

Wilbert, M. I., points out that among the proposed new additions are *acidum acetylo-salicylicum*, with *aspirinum* as a synonym; *diethylamido-antipyrinum*; *pyramidonum* and *hexamethylenum tetraminum*, with *urotropinum* as a synonym.—Pharm. Weekblad, 1909, v. 46, pp. 969–989; Am. J. Pharm., Phila., 1909, v. 81, p. 585.

#### 9. JAPANESE.

Wooyenaka, Keizo, reviews the history of the Ph. Japon. and calls attention to some of the valuable features of the present (third) edition.—Am. Druggist, N. Y., 1909, v. 54, p. 260.

Hecker, John H., reports on a comparative study of the Japanese and United States pharmacopœias and calls attention to the relative number of the several preparations found in the two pharmacopœias; also to many of the points of difference in strength.—Merck's Rep., 1909, v. 18, pp. 86–87.

Marris, G. W., in a critical review of the new Japanese Pharmacopœia, contrasts it with the British, French, and German, and points out the similarity of some of the monographs to those of the German Pharmacopœia.—Chem. & Drug., Lond., 1909, v. 74, p. 379.

A book review calls attention to some of the novel features of the Ph. Japon. III, as indicated in the English translation published by the Pharmaceutical Society of Japan, Tokyo, 1907.—Pacific Pharmacist, 1909–10, v. 3, pp. 301–302.

An additional list of errata to the English edition of the Ph. Japon. III is reprinted, a special insert of 5 pages of printed matter.—J. Pharm. Soc. Japan, March, 1909, No. 325.

Forrester, G. P., points out that in Japan doctors who wish to overstep the doses given in the table "must place an exclamation mark under the name of a medicine in the prescription." In the former edition of the Pharmacopœia Japonica  $\nabla$  was the sign required in such cases.—Chem. & Drug., Lond., 1909, v. 75, p. 346.

#### 10. FRENCH.

Dorveaux, P., presents a brief but interesting historical review of the several editions of the French Codex; the dates of publication are as follows: Ph. Fr. I, 1818; Ph. Fr. II, 1837; Ph. Fr. III, 1866; Ph. Fr. IV, 1884 (supplement, 1895); Ph. Fr. V, 1908.—Bull. sc. pharmacol. Par., 1909, v. 16, pp. 323–326.

Gehe & Co. (Handelsbericht, 1909, p. 45) discuss the Codex medicamentarius Gallicus and point out that the book includes nearly 200 pages more than did the Ph. Fr. IV. The general appearance of the book represents considerable progress, in accordance with the precedent established by other pharmacopœias; the monographs are arranged alphabetically, in place of the group arrangement formerly used. The provisions of the Brussels Protocol have been generally adopted and the Protocol itself is reprinted in the Appendix.

Schamelhout, A., calls attention to a number of preparations of the Ph. Fr. which are not in accord with the decisions of the Brussels Conference.—Bull. Soc. roy. d. pharm. Brux., 1909, v. 53, p. 298.

Mayo, Caswell A., compares the French Codex with the Pharmacopœia of the United States and points out that the most striking characteristic of the French Codex is the number of formulas contained in it.—Am. Druggist, N. Y., 1909, v. 54, p. 231.

Weigel, G., presents a comprehensive review of the new Ph. Fr. V, and calls attention to a number of changes contained therein.—Pharm. Zentralh., 1909, v. 50, p. 255 ff.

Kremel, A., reviews the Ph. Fr. V, calls attention to the arrangement of the material, and discusses at some length the monographs that are contained therein.—Pharm. Post, Wien, 1909, v. 42, pp. 2–5, 21–22.

Fleury, E., criticizes the botanical descriptions of the Ph. Fr. V.—Bull. sc. pharmacol. Par., 1909, v. 16, pp. 460–464.

Düsterbehn, presents a comprehensive review of the new Ph. Fr. V.—Apoth. Ztg., Berl., 1909, v. 24, p. 226 ff.

Fleissig, Paul, reviews the Ph. Fr. V, and calls attention to a number of the changes that are embodied therein.—Schweiz. Wchnschr. f. Chem. u Pharm., Zürich, 1909, v. 47, pp. 593–597. From Therap. Monatsh., Berl., 1909, v. 23, pp. 273–276.

Mitlacher, Wilhelm, presents a comprehensive review of the pharmacognosy of the Ph. Fr. V, with tables showing the comparative number of the drugs of the several groups; also the titles used in the Ph. Fr. V, the Ph. Austr. VIII, the Ph. Germ. IV, and the Ph. Helv. IV.—*Pharm. Post*, Wien, 1909, v. 42, pp. 33-34; 45-47; 57-58; 69-71.

Schamelhout, A., compares the requirements of the Ph. Fr. V with those of the Ph. Belg. and the National [Belgian] Formulary.—*Bull. Soc. roy. de pharm. Brux.*, 1909, v. 53, pp. 5-15, 54-57, 69-84.

Merck, E. (Darmstadt), calls attention to the fact that, for most of the tests of the Ph. Fr. V, the proportion of the substance to be employed is not indicated. In many other cases the importance of the concentration of solutions to be tested is not indicated.—*Bull. sc. pharmacol. Par.*, 1909, v. 16, p. 543.

A news note points out that a committee of French wholesale druggists has issued a list of 60 articles, of which they assert that the tests given are either too exacting or erroneous. The general complaint is that no distinction is made between products obtained in the laboratory under experimental conditions and average merchandise of reasonable but not absolute purity.—*Pharm. J., Lond.*, 1909, v. 29 (83), p. 58.

The list of pharmacopœial substances to the requirements for which the syndicate of French druggists has objected is reprinted, attention being called to the objectionable and impractical demands that are made.—*Répert. d. pharm., Par.*, 1909, v. 21, pp. 297-300.

A news note points out that one of the effects of the new Pharmacopœia will be an increase in the cost of many well-known preparations.—*Pharm. J., Lond.*, 1909, v. 28 (82), p. 512.

Wilbert, M. I., points out that the French Codex contains many complex pharmacal preparations. *Tinctura vulneraria*, for instance, contains 19 ingredients, *electuarium diascordium* (much simplified) still contains 16, the compound wine of squill 12, compound oil of hyoscyamus 11, and compound sirup of rhubarb 10.—*Am. J. Pharm., Phila.*, 1909, v. 81, p. 421.

The formulas for a number of galenical preparations included in the Ph. Fr. V are reprinted.—*Pharm. Zentralh.*, 1909, v. 50, pp. 419 ff. See also *Chem. & Drug., Lond.*, 1909, v. 74, p. 24.

Wiki, B., presents certain considerations on the extracts of the poisonous Solanaceæ of the Ph. Fr. V and the estimation of their alkaloids. He compares the methods of the Ph. Germ. IV and Ph. Helv. IV, preferring the latter or that of Merck.—*Bull. sc. pharmacol. Par.*, 1909, v. 16, pp. 640-649.

An editorial (*National Druggist*, v. 39, 1909, p. 306) points out that the new French Pharmacopœia is meeting with criticism on account of the excessive demands of the "purity rubric," and the fact that a number of tests given in that book are altogether faulty.

An unsigned note points out that, so far, criticism of the new French Pharmacopœia has been limited to hostile comments on the regulations embodied in the matter prefixed to the work which have the force of law, and compel the pharmacist to undertake a great deal of work in the classification and storage of drugs of which the advantage is by no means apparent.—Pharm. J., Lond., 1909, v. 29 (83), p. 58.

"A. G.," in a critique of Yvon's *Commentaires pharmaceutiques du Codex de 1908*, expresses regret that Yvon, one of the most influential and competent members of the Codex commission, gives no reasons for the deletions, modifications, and additions made in the new Codex. These changes were no doubt thoroughly studied by the commission and were made only for cause. An explanation would, it is pointed out, serve to diminish criticism.—Bull. sc. pharmacol. Par., 1909, v. 16, p. 175.

Martin, Henri, discusses the relation of the White Cross Society and the Pharmacopœia, in connection with drug adulteration.—J. d. pharm. et d. chim., Par., 1909, v. 30, pp. 521-528.

Forrester, G. P., points out that the French Codex contains a comprehensive table of maximum doses, but it is distinctly stated that these are given merely as information and denote amounts which it is advisable not to overstep. The doctor alone assumes full responsibility for his prescription, and this table is to have no influence on the findings of a court of law.—Chem. & Drug. Lond., 1909, v. 75, p. 346.

#### 11. SERBIAN.

"ndj" reviews the Ph. Serb. II, points out that the provisions of the Brussels Protocol have been followed quite freely, also calls attention to the articles that have been omitted from and those that have been admitted to the present edition of the Servian Pharmacopœia.

In connection with drugs this Pharmacopœia gives the systematic name of the plant or animal, the order to which it belongs, the country from which it is obtained, and a description of the appearance and properties of the drug as marketed. With many of the more important drugs microscopic characteristics are also described. Possible adulterations are pointed out, and with many drugs the permissible ash content is given.—Pharm. Post, Wien, 1909, v. 42, pp. 1029-1030.

#### 12. SPANISH.

An editorial (Chem. & Drug. Lond., 1909, v. 75, p. 21) comments on the Spanish Pharmacopœia, and points out that this book describes no fewer than 1,080 preparations, including various popular and new remedies and an extended number of galenicals. The

metric system is used throughout. Distinctive and quantitative tests are given wherever possible, and microscopical features are detailed of the more important drugs. The editorial concludes that the new Pharmacopœia must prove acceptable after its antiquated predecessor of 1884.

An editorial note (National Druggist, 1909, v. 39, p. 350) points out that in the new edition (the seventh) of the Spanish Pharmacopœia the metric system is used throughout. The names of the articles are given in Spanish and Latin. In the description of well-defined substances are given the chemical formula, the molecular weight, physical properties, tests of identity and purity, dose, and methods of administration. A number of new alkaloids and other substances have been added. There are 54 powders, 28 ointments, 13 mixtures, 11 pills, and 8 tablets. Tinctures are divided into two classes, aqueous and alcoholic.

Schamelhout, A., notes that the Spanish Pharmacopœia does not comply with the decisions of the Brussels Conference as to the method of preparation of the tincture of opium.—Bull. soc. roy. d. pharm. Brux., 1909, v. 53, p. 297.

### 13. SWEDISH.

Delphin, T., presents a review of the Ph. Svec. IX, and comments on a number of monographs contained therein.—Svensk. farm. Tidskr., 1909, v. 13, pp. 1-4, 21-31.

Lindstrom, Erik, discusses the tinctures of the Ph. Svec. IX, and comments on the change in the strength of the alcohol used as menstruum.—*Ibid.*, v. 13, pp. 8-9. See also comments by C. H. Svensson.—*Ibid.*, p. 32.

Swanlund, Julius, comments on some changes and additions to the Ph. Svec. IX.—*Ibid.*, pp. 45-46.

Rosendahl, H. V., presents some additional comments on monographs not discussed by Jolin and Delphin.—*Ibid.*, pp. 185-190, 207-211, 229-231.

Delphin, T., presents some additional observations on the changes embodied in the Ph. Svec. IX.—*Ibid.*, pp. 295-298.

Bjerre, Nicolai, contributes a brief note on the Swedish Pharmacopœia.—Arch. f. Pharm. og Chem., 1909, v. 16, pp. 23-25.

Schimmel & Co. (Semi-Annual Report, April, 1909, pp. 99-100) discuss the requirements for volatile oils, "aetherolea," in the Ph. Svec. IX.

Gehe & Co. (Handelsbericht, 1909, p. 46) review the new Swedish Pharmacopœia, and point out that the book became official on January 1, 1909. They state that the new edition of the Ph. Svec. was



prompted by the desire to comply with the provisions of the Brussels Protocol, and the several requirements of that Protocol are generally adopted. A complete revision of the chemical monographs has also been made, and the tests have been much improved and simplified. Fourteen new articles have been admitted, and 9 articles deleted. The revision commission did not include adrenalin, tuberculin, or diphtheria antitoxin, because these several articles could not be controlled by chemical means in the laboratory of the apothecary.

An editorial (National Druggist, 1909, v. 39, p. 7) points out that in contrast with the French Codex, with its 999 pages, the Swedish Pharmacopœia is a small volume of 426 pages, and in general arrangement and similarity of preparation bears a resemblance to the German Pharmacopœia. Only a few of the best known and more potent drugs are assayed for their alkaloidal content. A number of new therapeutic agents have been introduced; in some cases their chemical names, in other their trade names are given, but where the scientific names are used the trade name is not given.

Wilbert, M. I., calls attention to the Ph. Svec. IX, and points out that the comments that have appeared in European pharmaceutical journals would appear to indicate that this book is both compact and comprehensive.—Am. J. Pharm., Phila., 1909, v. 81, p. 143.

#### 14. SWISS.

Mayer, Joseph L., reviews the Ph. Helv. IV, and calls attention to some of the features that appear to him to stand out prominently. He points out that the book is very explicit with regard to the methods employed in determining physical and chemical constants. The method of standardizing apparatus is quite fully covered, and tinctures are directed to be made by percolation. The extract-matter content and method of determining some fluid extracts are stated, and for most of the potent drugs there are assay processes.—Am. Druggist, N. Y., 1909, v. 54, p. 230.

Berger, Fr., presents a discussion on the Ph. Helv. IV, in which he criticizes a number of the requirements.—Schweiz. Wchnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, pp. 445-450.

Beuttner, E., comments on the criticisms of the Ph. Helv. IV by Fr. Berger and presents some additional comments on the requirements criticised.—*Ibid.*, pp. 609-616.

Some of the more interesting formulas of the Ph. Helv. IV are reprinted.—Ztschr. d. allg. österr. Apoth.-Ver., Wien, 1909, v. 47, pp. 3-4.

A news note points out that the Swiss Society of Pharmacists is having prepared an abstract of the Ph. Helv. IV for distribution to

physicians. This abstract is to contain formulas of the galenical preparations contained in the Pharmacopœia and such additional information as may be of interest to physicians.—Schweiz. Wchnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, p. 107.

A book review discusses an abstract of the Ph. Helv. IV, which contains the galenical formulas and a number of the tables embodied in that Pharmacopœia. The booklet is printed in Latin and is intended to be used in connection with propaganda work among physicians in Switzerland.—*Ibid.*, pp. 189–190.

Forrester, G. P., points out that the doses given in the Ph. Helv. IV table of maximum doses apply to the administration of the preparations either internally, by hypodermic or intravenous injection, as a clyster or suppository, and higher doses must be followed by ! (point of exclamation).—Chem. & Drug., Lond., 1909, v. 75, p. 346.

#### 15. BRITISH PHARMACEUTICAL CODEX.

Watson, A. D., discusses the B. P. C., and presents a number of suggestions for improving some of the formulas contained therein.—Brit. & Col. Drug., 1909, v. 55, pp. 29–30.

An editorial (*Ibid.*, p. 210), commenting on the publication of the British Pharmaceutical Codex by the pharmaceutical society, points out that in undertaking this publication Bloomsbury Square has sunk a considerable sum of money and the permanent financial success of the undertaking is even yet problematical.

Schimmel & Co. (Semi-Annual Report, April, 1909, p. 99) call attention to a review by C. T. Bennett of the requirements in the B. P. C., 1907, for essential oils and their constituents and point out that, in a similar review of this work, published by them in a previous report, the opinions expressed by them differ from those of Bennett on many points.

An editorial (Pharm. J., Lond., 1909, v. 28 (82), p. 323) points out that at the second meeting of the Australasian Pharmaceutical Conference, recently held at Brisbane, it was suggested that the Australian Pharmaceutical Formulary should become the nucleus of an Australian pharmacopœia, with the characters and tests of purely Australian drugs. Meanwhile revision of the Formulary is proceeding. All of the existing formulas are to be retained, but the names of certain preparations are to be altered.

Watson, A. D., in discussing the B. P. C. expresses the belief that the arrangement of Squire's Companion is, *par excellence*, the ideal arrangement for pharmaceutical price lists and books of reference.—Brit. & Col. Drug., 1909, v. 55, p. 29.

### 3. COMMENTS ON U. S. P. VIII RELATIVE TO THE REQUIREMENTS OF THE BRUSSELS CONFERENCE

Wilbert, M. I., points out that the matter of international nomenclature and international standards generally received much more attention in the earlier revisions of the U. S. P., and quotes from the prefaces of the U. S. P. 1830, 1840, 1850, and 1860, illustrating the keen interest that was felt in the need for international standards.—*Western Druggist*, Chicago, 1909, v. 31, p. 397.

Schamelhout, A., calls attention to a number of instances in which the U. S. P. does not comply with the decisions of the Brussels Conference.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 297.

Wilbert, M. I., points out that with the general adherence to the provisions of the Protocol of the Brussels Conference for the unification of the formulæ of potent medicaments it is quite probable that by the time the U. S. P. IX is finally published ours will have been for years the only Pharmacopœia not in full accord with the standards of strength and principles of nomenclature suggested by the Protocol of this international conference.—*Midl. Drug.*, 1909, v. 43, p. 684.

The same author thinks that if the Pharmacopœia is to meet the needs of the medical profession true international standards must be insisted on.—*J. Am. M. Ass.*, 1909, v. 53, p. 792.

An editorial (*Meyer Bros. Drug.*, St. Louis, 1909, v. 30, p. 197) asserts that the international congress for the unification of potent medicines, which met in Brussels in 1902, adopted a few rules governing the strength of those potent medicines which are used pretty much the world over. The United States Pharmacopœia was the first one to conform to the agreement, and other pharmacopœias, as revised, have adopted the national standards.

### SPANISH EDITION OF THE U. S. P. VIII

Remington, Joseph P., announces the Spanish translation of the Pharmacopœia of the United States of America, eighth revision. The Spanish translation is from the latest revised text, and it is confidently hoped that it may prove a potent factor in elevating the professions of medicine and pharmacy by furnishing a guide to the preparation of medicines accurately from drugs of the highest quality.—*Boston M. & S. J.*, 1909, v. 160, p. 527.

An editorial (*J. Am. M. Ass.*, 1909, v. 52, p. 2109) refers to the Spanish translation of the U. S. P. as a possible basis for a pan-American pharmacopœia. Compare *Lancet*, 1909, v. 177, p. 117.

An editorial (*N. York M. J.*, 1909, v. 89, p. 1204) states that it is rather unfortunate that the publication of the Spanish edition has been so long delayed, for it seems reasonable to suppose that its pub-

lication will be a considerable factor in bringing about a closer understanding between the medical profession in the United States and that of the Spanish-speaking countries.

An editorial (*Pacific Pharmacist*, 1909-10, v. 3, p. 26) discusses the Spanish edition of the U. S. P. VIII, and asserts that the committee of revision and the editor of the Spanish edition have labored earnestly to produce a standard work that will merit the approbation of scientific men, and science knows no language and no country.

An editorial (*Meyer Bros. Drug.*, St. Louis, 1909, v. 30, p. 165) asserts that the United States Pharmacopœia in Spanish will, no doubt, receive a hearty welcome in each of the Latin-American Republics which do not have a national pharmacopœia of their own. The first of the Latin-American Republics to adopt the Pharmacopœia of the United States was Costa Rica. It would not be surprising if the 1910 convention of the U. S. P. C. will arrange for the simultaneous publication of the Pharmacopœia in both English and Spanish, so that the Spanish edition of the revised Pharmacopœia will be on the market at about the same time as the English edition.

A news note (*Pharm. Ztg.*, Berl., 1909, v. 54, p. 372) calls attention to the publication of the "Farmacopea de los Estados Unidos de America. Octava Revision decenal, autorizado por la convencion de la Farmacopea de los estados unidos Reunida en Washington el Anno 1900 a. D. Revisado por el comite de Revision y Publicada por la Junta Direction. Official Desde Septiembre 1 de 1905 incluyente y correcciones Hasta L de Junio 1907. Agentes: American Publishing Company, Presidente A.-R. Elliot, Newyork," and points out some of the distinguishing features of the new book.

An editorial (*Brit. & Col. Drug.*, 1909, v. 56, p. 138) points out that the large body of Spanish-speaking people owing allegiance to the United States fully justifies the American pharmacopœial authorities in effecting a translation of the U. S. P. in Spanish. For instance, the total population of the Philippine Islands, which the States wrested from Spain, is something over 11,000,000.

An unsigned note (*Boll. chim. farm. Milan*, 1909, v. 48, p. 817) calls attention to the Spanish edition of the U. S. P. which, it is stated, will be most useful also in Europe, especially with those who have but slight familiarity with the English language.

An editorial (*Am. Druggist*, N. Y., 1909, v. 54, p. 227) comments on the Spanish U. S. P., and points out that the translation of this work into Spanish became, in a sense, a duty on the part of the board of trustees, when, through the enactment of the food and drug law by Congress, in 1906, the Pharmacopœia became a legal standard in the insular possessions of the United States where Spanish is spoken.

A book review of the *Farmacopea de los Estados Unidos de America* outlines the history of the translation of the Pharmacopœia

of the United States into Spanish, and calls attention to some of the characteristic features of the resulting book.—*Midl. Drug.*, 1909, v. 43, pp. 388–389.

Remington, Joseph P., discusses the Spanish translation of the United States Pharmacopœia, and points out that this book has been issued more from an educational motive than any other, the board of trustees believing that the islands which fell into the possession of the United States after the last Spanish war should possess a means of using modern pharmaceutical preparations, and indeed prepare for themselves American pharmaceutical products if they so wished.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 662–666. See also, *Am. J. Pharm.*, 1909, v. 81, pp. 247–248, 444–445; also, *Am. Drug-gist*, N. Y., 1909, v. 54, p. 242.

An editorial (*Drug. Circ.*, N. Y., 1909, v. 53, pp. 576–577) comments on the paper by Joseph P. Remington on the Spanish translation of the Pharmacopœia, and points out that the new book will no doubt enable many of the large dealers among Spanish-speaking people to make their own preparations, and thus spread the influence of the pharmacy of the United States.

Wilbert, M. I., in discussing the paper by Remington on the Spanish translation of the U. S. P., points out that the Pharmacopœia of the United States is now the official Pharmacopœia of the island of Cuba, having been adopted as the official standard in place of the old Spanish Pharmacopœia.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 664.

### III. COMMENTS ON OFFICIAL ARTICLES.

#### ACACIA.

Beringer, George M., points out that acacia is officially described as "a gummy exudation." This would be more correct if changed to "The air-dried gummy exudation from the trunk and branches."—Proc. Am. Pharm. Ass., 1909, v. 57, p. 811.

Rusby, H. H., believes it to be quite useless to specify one species and then say "and others." He asserts that so far as known no *Acacia* yields a gum that may not be used and the definition should, therefore, say "from various species of *Acacia*." There should be both a chemical and a microscopical test for excluding "Indian or hog gum."—Midl. Drug., 1909, v. 43, p. 688. Also Pharm. Era, 1909, v. 42, p. 633.

The committee of reference in pharmacy suggests that the description for *acaciæ gummi* should be made more terse. Suggestions are also made for revising the tests, including ferric chloride and Fehling's solution.—Chem. & Drug., Lond., 1909, v. 74, p. 288.

An abstract (Chem. & Drug.) calls attention to the second report of the Wellcome Research Laboratories at the Gordon Memorial College, Khartoum, which gives an interesting account of the production and collection of acacia in the Sudan.—Drug Topics, New York, 1909, pp. 182-183.

Caesar & Loretz (Geschäfts-Ber., 1909, p. 31) point out that the nature of the available Cordofan acacia would indicate that the soft and older varieties are no longer available and that dealers in the Sudan market practically all of the acacia as soon as gathered.

Hynson, Henry P., asserts that anyone who has garbled a good sample of acacia understands the wonderful effect that the removal of 1 or 2 per cent of objectionable matter has upon the remainder and knows how greatly the drug is improved by the loss which bears an infinitesimal relationship to the enhanced value which is secured.—Drug Topics, New York, 1909, v. 24, p. 195.

Reinitzer, Friedr., discusses the enzymes occurring in acacia, and points out that there is an oxydase, a peroxydase, and amylase, and that the latter consists of a mixture of at least two, probably more, enzymes.—Pharm. Post, Wien, 1909, v. 42, p. 845.

Gane and Webster point out that the best gums usually reduce an alkaline copper tartrate solution, hence this test should be omitted. The absence of sugar or dextrin can be insured by the polariscope test. Acacia is slightly levorotatory. Sugar, dextrin, etc., are dextro-rotatory. The starch test should also be amplified by the statement that "a cooled solution" should not be colored blue with iodine T. S.—*Drug Topics*, New York, 1909, v. 24, p. 325.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 5) report the ash content of several batches of powdered acacia to range from 2.5 to 2.9 per cent.

Schamelhout, A., notes that the French mucilage of acacia is 50 per cent, in Belgium 10 per cent.—*Bull. Soc. roy. d. pharm. Brux.*, 1909, v. 53, p. 70.

Bromley, A. W., asserts that, were he called upon to make a list of pharmaceutical nuisances, he should begin with mucilage of acacia. He finds that the least troublesome method of straining mucilage of acacia is to force it through the muslin by the pressure produced by the expansion of air in the bottle, and outlines in detail the method he employs.—*Pharm. J., Lond.*, 1909, v. 29 (83), pp. 6-7.

Crombie, J., suggests continuous displacement in the making of mucilage of acacia to overcome the objections to the straining of the finished mucilage.—*Ibid.*, p. 124.

Nixon, C. F., asserts that in making sirup of acacia it is difficult to dissolve the sugar in the solution of gum with the amount of water directed. If the amount of water used for solution is increased to 500 cc. the difficulty is removed and enough water will still remain to wash the strainer. He also points out that the best Turkish acacia should be used, as it makes the sirup brighter and keeps better than when made from Senegal gums.—*Apothecary*, 1909, v. 21, April, p. 18.

A committee of the *Syndicat général de la Droguerie française* states that it is difficult to prepare sirup of acacia with one-tenth of its weight of gum and recommends a return to one-twelfth (Codex, 1884).—*Bull. sc. pharmacol. Par.*, 1909, v. 16, p. 290.

Bridel, Marc, reports on the assay of sirup of acacia of the Ph. Fr. V.—*J. d. pharm. et d. chim., Par.*, 1909, v. 29, pp. 289-291.

Sayer, M. C., in discussing the incompatibilities of the new synthetics, points out that sirup of acacia has many incompatibilities with this class of substances. The incompatibilities occur as a result of an oxidizing ferment or enzyme in the gum.—*Drug. Circ., N. Y.*, 1909, v. 53, p. 15.

Diehl, C. L., reports from the committee on N. F. recommending the deletion of mixture of acacia.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1078. They also recommend the deletion of the letters (G. P.) after "Pulvis gummosus."—*Ibid.*, p. 1083.

## ACETA.

Dieterich and Mix, in a discussion on the valuation of galenical preparations, enumerate the determinable requirements for the several Ph. Germ. IV and some unofficial vinegars.—Pharm. Zentralh., 1909, v. 50, p. 726. See also *ibid.*, p. 540.

## ACETUM AROMATICUM N. F.

Taylor, Augustus Carrier, does not believe that aromatic vinegar was ever prescribed by a physician.—Pharm. Era, 1909, v. 41, p. 493.

Members of the Baltimore branch express the belief that, in the N. F. formula for aromatic vinegar, the flavoring oils are in excess and might be reduced. Heating the preparation was thought to be unnecessary, as better results, especially as to flavor, could be secured by allowing the mixture to macerate for some time before filtration.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 54.

## ACETANILIDUM.

Mittlebach, Wm., asks why acetanilide and antipyrine should end with the superfluous *e*, while acetphenetidin (phenacetin) does not. He thinks it would simplify matters if these titles should all agree and the *e* be dropped. Germany, the birthplace of antipyrine, does not use the *e*; why should we?—Bull. Am. Pharm. Ass., 1909, v. 4, p. 60.

An editorial (Pharm. J., Lond., 1909, v. 28 (82), p. 250) points out that the committee of reference in pharmacy recommends the omission of the constitutional formula for acetanilide, and further recommends that such formulas should not be introduced into the Pharmacopœia.—Chem. and Drug., Lond., 1909, v. 74, p. 288.

Wilbert, M. I., comments on the solubility of acetanilide, as given in the several pharmacopœias.—Proc. Pennsylvania Pharm. Ass., 1909, p. 833.

Orton and Jones report observations on the primary interaction of chlorine and acetanilides.—J. Chem. Soc., Lond., 1909, v. 95, pp. 1456-1464.

Jones and Orton report observations on the chlorination of acetanilide.—*Ibid.*, pp. 1056-1060.

Waller, Elwyn, discusses the determination of acetanilide in hydrogen peroxide solutions.—J. Ind. and Eng. Chem., 1909, v. 1, p. 262.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 5) report that the melting point of 11 commercial samples examined lay between 113° and 114° C., this being approximately the figure given by the Pharmacopœia. This drug is now more generally pure than in former years.



Emery, W. O., reports comparative work done on headache mixtures for the separation of acetanilide, caffeine, sodium bicarbonate, and sugar.—*Proc. Ass. Off. Agric. Chem.*, 1909, 26th Ann. Conv., pp. 197–198 (*Bull. Bur. Chem.*, U. S. Dept. Agric., 1910, No. 132). See also *Am. J. Pharm.*, Phila., 1909, v. 81, pp. 3–5, 480–484.

Bulletin No. 126 (Bureau of Chemistry, U. S. Department of Agriculture, 1909, pp. 85) contains a compilation of data on the harmful effects of acetanilide, antipyrine, and phenacetin.

Wiley, H. W., calls attention to the investigations made in the Bureau of Chemistry on the harmful effects of acetanilide, antipyrine, and acetphenetidin, and concludes that these drugs are unsuitable and dangerous for use in proprietary medicines without medical supervision.—*Ann. Rep. U. S. Dept. Agric.* for 1909, 1910, p. 434.

An editorial (*J. Am. M. Ass.*, 1909, v. 53, p. 303) calls attention to the Bureau of Chemistry bulletin on the harmful effects of acetanilide, antipyrine, and phenacetin, with a reference to the appalling acetanilide death record published in *Collier's Weekly*. See also p. 394.

Hale, Worth, reports observations on the effects of caffeine and sodium bicarbonate upon the toxicity of acetanilide, and presents a chart which graphically illustrates the relative toxicity of acetanilide and of mixtures of acetanilide with caffeine or sodium bicarbonate.—*J. Pharm. & Exper. Therap.*, 1909–10, v. 1, pp. 185–197. See also *Proc. VIIth Internat. Congress App. Chem.*, Sec. VIIIb, Pharmacy, 1909, London, 1910, pp. 104–107.

The same author reports an experimental study on the influence of certain drugs upon the toxicity of acetanilide and antipyrine.—*Bull. Hyg. Lab.*, U. S. P. H. and M.-H. S., 1909, No. 53, pp. 57.

An editorial (*Med. Rec.*, N. Y., 1909, v. 76, p. 736) calls attention to the fallacy of using caffeine to overcome the cardiac depression caused by the coal tar antipyretics, with special reference to the work of Hale.

Jacobi, Abraham, asserts that it is a sin and a shame that acetanilide has been taken up bodily into the *Pharmacopœia*, for if there is any dangerous drug anywhere it is acetanilide.—*Tr. Am. M. Ass.*, Sec. Pharm. & Therap., 1909, p. 233.

#### ACETONUM.

Hunt, Reid, believes that acetone is one of the articles, the description of which could well be placed in the Appendix of the *Pharmacopœia*.—*Tr. Am. M. Ass.*, Sec. Pharm. & Therap., 1909, p. 11.

Gane and Webster suggest that acetone be omitted, as it is not used medicinally, and an article of the purity specified is not neces-

sary for use as a solvent, and at present is not obtainable in commercial quarters.—*Drug Topics*, New York, 1909, v. 24, p. 325.

McWalter, J. C., recommends that acetone be given a place in the *Ph. Brit.*, as this drug is of decided use as an antispasmodic and as a solvent for more active inhalants in asthmatic affections.—*Chem. & Drug. Lond.*, 1909, v. 74, p. 20.

Kahn, Joseph, points out that commercial acetone, being often obtained by fractionating wood spirit, may contain a fairly large proportion of methyl alcohol, and tests for the absence of methyl alcohol are imperatively needed.—*Am. Druggist*, N. Y., 1909, v. 55, p. 6. See also *Proc. New York Pharm. Ass.*, 1909, p. 264.

An abstract (*Daily Consular and Trade Reports*, Jan. 15, 1909) describes the manufacture of acetone in France.—*Oil, Paint, and Drug Reporter*, New York, 1909, v. 75, May 31, p. 15.

Bardach, Bruno, outlines a test for acetone. Acetone containing albumen, or an anhydride-forming complex, gives with a solution of potassium iodide and iodine with excess of ammonia a black precipitate gradually turning yellow.—*Chem. Ztg.*, Cöthen, 1909, v. 33, p. 570.

Hoffman, Alfred, reports on the condensation of acetone by means of calcium oxide.—*J. Am. Chem. Soc.*, 1909, v. 31, pp. 722-724.

Scoville, W. L., asserts that usually 75 to 80 per cent acetone distills at 56° to 57° C. It is difficult to obtain above this standard.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 730.

Dohme and Engelhardt report rejecting a shipment of acetone which, although answering all U. S. P. requirements, had a strong, pungent odor.—*Ibid.*, p. 713.

An editorial note (*Bull. Pharm.*, 1909, v. 23, p. 127) calls attention to some of the possible uses of acetone, and points out that in view of the fact that no restrictions are placed upon this solution as upon the solution of benzine and gasoline, it really seems that this article deserves more attention from druggists than has been given it heretofore.

v. Herff, Otto, discusses the use of acetone and alcohol as disinfectants, and points out that acetone is an unusually good cleansing agent for the skin; it invades the pores, readily dissolves fats, also absorbs water, and hardens the skin.—*Therap. d. Gegenw.*, 1909, v. 50, pp. 573-577.

Oeri, R. (*Ztschr. f. Geburtsh. u. Gynäkol.*, v. 63, no. 3), reports successful results in the disinfection of the hands by the von Herff acetone-alcohol technique. Further details are given in the abstract.—*J. Am. M. Ass.*, 1909, v. 52, p. 744.

Tovey, D. W., presents a paper on the acetone treatment of inoperable carcinoma, with a report of eight cases.—*Med. Rec.*, N. Y., 1909, v. 76, pp. 765-767.

**ACETPHENETIDINUM.**

Gane and Webster think that the trade name "phenacetin" should be retained, or at least added as a synonym, inasmuch as it is almost invariably prescribed under that name.—*Drug Topics*, New York, 1909, v. 24, p. 325.

Beringer, George M., thinks that phenacetin is too well established to be superseded by acetphenetidin.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 795.

Mittelbach, Wm., asks why acetanilide and antipyrine should end with the superfluous *e*, while acetphenetidin (phenacetin) does not. He thinks it would simplify matters if these titles should all agree, and the *e* be dropped.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 60.

Wiley, H. W., points out that acetphenetidin is no longer made in quantity from phenol, but has its starting point with the well-known substance benzol. The presence of chloracetanilide is readily explained from the fact that manufacturers do not take the precaution to properly purify their crude æthoxynitrobenzols.—*Ann. Rep. U. S. Dept. Agric.* for 1909, 1910, p. 437.

A news note reports that the Attorney General of the United States upholds the contentions of the Department of Agriculture, and decides that, notwithstanding it may have been produced from a different substance, phenacetin is held to be a derivative of acetanilide.—*Oil, Paint, and Drug Reporter*, New York, 1909, v. 75, Feb. 1, p. 28D.

Rosengarten, George D., points out that the tests with chlorinated soda solution would indicate the presence of acetanilide in acetphenetidin that would be acceptable by the bromine or other tests.—*Am. Druggist*, N. Y., 1909, v. 55, p. 366. See also *Merck's Rep.*, 1909, v. 18, p. 336.

Emery, W. O., outlines a method for the determination of acetphenetidin in mixtures containing sodium bicarbonate and caffeine, and in mixtures containing these two ingredients with acetanilide.—*Am. J. Pharm.*, Phila., 1909, v. 81, p. 5. See also *Proc. Ass. Off. Agric. Chem.*, 1909, 26th Ann. Conv., pp. 198–200 (*Bull. Bur. Chem.*, U. S. Dept. Agric., 1910, No. 132).

Bulletin No. 126 (Bureau of Chemistry, U. S. Department of Agriculture, 1909, pp. 85) contains a compilation of data on the harmful effects of acetanilide, antipyrine, and phenacetin.

An unsigned note reports a fatal case of poisoning by phenacetin in an invalid 50 years of age, who had taken 1 gm. of phenacetin and 0.2 gm. of double benzoate of caffeine and soda.—*Nouv. remèdes*, 1909, v. 25, p. 95.

Seifert, Otto, found reports of but very few cases of toxic action following the use of acetphenetidin. Those noted are skin eruptions, hæmoglobinuria, hæmorrhage, cyanosis and ulcers on the lower part of the leg.—*Apoth. Ztg.*, Berl., 1909, v. 24, p. 20.

**ACIDUM ACETICUM.**

The committee of reference in pharmacy recommends that the test for lead in acidum aceticum be better described.—Chem. & Drug., Lond., 1909, v. 74, p. 288.

Gane and Webster think that acetic acid might be omitted in view of the desire to lessen the bulk of the Pharmacopœia, retaining only the dilute and glacial acids, especially in view of the lack of uniformity in these products as specified in the various pharmacopœias. For example, the U. S. P. requires this acid to be not less than 36 per cent, the Ph. Brit. requires 33 per cent, the Ph. Germ. 80 per cent, Ph. Fr. 10 per cent and the Ph. Ital. 19 per cent. There is no need for including more than two strengths in the Pharmacopœia.—Drug Topics, New York, 1909, v. 24, p. 325.

Jacob, C. H., in a French patent application, describes the electrochemical manufacture of acetates, especially sodium acetate, from alcoholic liquors produced by the saccharification and fermentation of starch or other substances.—J. Soc. Chem. Ind., 1909, v. 28, p. 21.

White and Jones, in discussing the effect of temperature and dilution on the conductivity of organic acids in aqueous solution present observations on the molecular conductivity and dissociation, also the temperature coefficients of acetic acid.—Am. Chem. J., 1909, v. 42, p. 525.

Bachman, Gustave, reports that in the acetic acid examined he found 34.2 per cent minimum and 36.25 per cent maximum.—Proc. Minnesota Pharm. Ass., 1909, p. 70.

Arny, H. V., reports nine samples of acetic acid examined; five contained 36 per cent, or over, of acetic acid, the others varied from 28 to 35.7 per cent.—Proc. Ohio Pharm. Ass., 1909, p. 66.

Sayre and Zieffle report one sample of acetic acid examined, which was below standard.—Bull. Kansas Bd. Health, 1909, v. 5, D. A., 16-23.

Pearson, W. A., reports on one barrel of acetic acid which was rejected on account of its yellow color.—Proc. Pennsylvania Pharm. Ass., 1909, p. 178.

**ACIDUM ACETICUM DILUTUM.**

Schamelhout, A., calls attention to the fact that the dilute acetic acid of the Ph. Fr. V contains 10 per cent of absolute acetic acid, while that of the Ph. Belg. III should contain at least 28.8 per cent.—Bull. Soc. roy. d. pharm. Brux., 1909, v. 53, p. 5.

Fleissig, Paul, points out that the dilute acetic acid of the Ph. Fr. V is required to contain 10 per cent while that of the Ph. Germ. is required to contain 25 per cent of absolute acid.—Therap. Monatsh., Berl., 1909, v. 23, p. 275. See also article by Düsterbehn (Apoth. Ztg., Berl., 1909, v. 24, p. 228).

## ACIDUM ACETICUM GLACIALE.

The White Cross Congress, held in Paris in October, 1909, suggests that the potassium permanganate test for 97 per cent acetic acid be made with 1 cc. of 1:1000 permanganate.—Chem. and Drug., Lond., 1909, v. 75, p. 681.

Umney, J. C., asserts that in the programme for the White Cross Society Congress acetic acid is required to contain a minimum of 97 per cent of real acetic acid. It might just as well be 99 per cent, which is a requirement readily attained.—*Ibid.*, p. 581.

Schamelhout, A., says the Ph. Belg. III is much more exacting as to the content of empyreumatic matters, and gives a much larger number of reactions to insure the absence of these impurities. In short, the product described should not be considered as an official drug.—Bull. Soc. roy. d. pharm. Brux., 1909, v. 53, p. 178.

He also calls attention to the fact that in France a 100 per cent acetic acid is official, while in Belgium it may contain 4 per cent of water.—*Ibid.*, p. 5.

Poulenc Frères, note that the Ph. Fr. V requirement for crystallizable acetic acid is an absolute standard of 100 per cent; they state that the average standard of the commercial acid is 98–99 per cent.—Bull. sc. pharmacol. Par., 1909, v. 16, p. 407.

Merck, E. (Darmstadt), states that the making of an acetic acid absolutely deprived of water is attended with great difficulties; moreover, concentrated acetic acid is very hygroscopic and by the consequent absorption of water the acetic acid content is easily diminished. For these reasons the crystallizable acetic acid of other pharmacopœias contains a small proportion of water. The following pharmacopœias permit a water content of 4 per cent: Ph. Germ. IV, Ph. Austr. VIII, Ph. Helv. IV, Ph. Belg. III, Ph. Japon. III, Ph. Svec. IX, Ph. Ital. II [also III], Ph. Hung. II [also III]. A minimum of 96 per cent would entail the following requirements: Sp. gr. not above 1.064; boiling point 110° to 119° C.; to saturate 1 gm. of the acid there would be needed at least 16 cc. of normal potash solution.—*Ibid.*, p. 544.

Rosengarten, George D., points out that the test for absence of empyreumatic substances in glacial acetic acid is too severe. The German Pharmacopœia test is sufficiently sensitive.—Merck's Rep., 1909, v. 18, p. 336. See also Am. Druggist, N. Y., 1909, v. 55, p. 366.

Wiley, H. W., points out that acetic acid 99 per cent pure is not readily obtained and that very little of the product on the market will comply with the rigid sulphuric acid bichromate test.—Ann. Rep. U. S. Dept. Agric. for 1909, 1910, p. 431.

Self, P. A. W., presents a note on the determination of the strength of glacial acetic acid, and outlines a method by means of which

Valenta's test may be used without danger of loss of acid during weighing and titration.—Pharm. J., Lond., 1909, v. 29 (83), p. 729.

Gardner, Hermann C. T., presents a note on the glacial acetic acids of commerce, and points out that the samples examined conform neither to the 99 per cent nor melting point standards of the Ph. Brit.—*Ibid.*, p. 69.

Dohme and Engelhardt report receiving a shipment of glacial acetic acid assaying 79 per cent absolute acetic acid only, and contaminated heavily with inorganic substances, heavy metals, and organic matter, the latter rendering the acid brown. The shipment was apparently sent by mistake.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 713.

Southall Bros. & Barclay (Rep. 1908-9, Birmingham, 1910, p. 27) experienced great difficulty in obtaining parcels of glacial acetic acid containing 99 per cent of hydrogen acetate, 98 per cent being the usual strength. They use the freezing point as a test of strength, employing a Beckmann apparatus and thermometer for its determination.

The Belgian inspectors of pharmacies report that they find acetic acid of different strengths; they insist upon the necessity for an acidimetric test of this product which is the point of departure for many other preparations.—J. d. pharm. d'Anvers, 1909, v. 65, p. 283.

#### ACID ACETYLSALICYLIC.

Prinz, Hermann, says that acetylsalicylic acid, known as aspirin, deserves to be recommended for admission to the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 796.

McWalter, J. C., thinks that acidum acetylsalicylicum should be given a place in the Ph. Brit., and asserts that this drug certainly produces marvelous results in some forms of rheumatism.—Chem. and Drug., Lond., 1909, v. 74, p. 20.

Madsen, E. Høst, reviews the history of acetylsalicylic acid, and points out that the substance was first recognized by Gerhardt in 1853 and was more completely studied by Kraut in 1869. He reports a comparative study of commercially available samples of the product.—Pharm. Ztg., Berl., 1909, v. 54, pp. 209-210. See also Arch. f. Pharm. og Chem., 1909, v. 16, pp. 81-85.

An unsigned article reports that the aspirin patent has been sustained by a decision handed down by Federal Judge Sandborn, August 10, 1909. The decision points out that acetylsalicylic acid was known as a chemical product for many years prior to the filing of the application, but it is alleged that it was never known in an unmixed or pure state until discovered by the patentee.—N. A. R. D. Notes, 1909, v. 8, pp. 941-942. See also Pharm. Era, 1909, v. 42, p. 311; and Canad. Pharm. J., Toronto, 1909-10, v. 43, p. 135.

The owners of the patent on aspirin present a warning to the drug trade which says, in part, that the unfair competition by reason of the sale of the infringing acetylsalicylic acid (aspirin) purchased in many instances from clandestine and unknown sources is demoralizing alike to the retail and wholesale trade.—Pharm. Era, 1909, v. 42, p. 258.

Dichgans, Hermann, reports examining a number of samples of acetylsalicylic acid, the melting point of which varied from 130° to 137.5° C.; 10 of the 16 samples examined gave a positive reaction with ferric chloride.—Pharm. Ztg., Berl., 1909, v. 54, p. 47.

In the 1908 report on the dispensary of Guy's Hospital, H. Finne-more points out that acetylsalicylic acid has increased in favor, 131 pounds having been employed, against 77 pounds in 1907. In regard to this substance, Finne-more reports a gain of about 130 pounds sterling in buying acetylsalicylic acid instead of the special brand known as aspirin.—Chem. & Drug., 1909, v. 74, p. 492.

Chistoni and Lapresa report a series of pharmacological researches on the action of aspirin.—Arch. farmacol. sper., 1909, v. 8, pp. 63–80.

Haynes, G. S., points out that aspirin is largely used as a substitute for the salicylates; when pure it has no action on the stomach, and is decomposed in the intestine into salicylates and acetates. The compressed tablets frequently contain some free salicylic acid, produced by contact with water during manipulation.—Folia Therap., Lond., 1909, v. 3, p. 13.

#### ACIDUM BENZOICUM.

Schamelhout, A., notes that the benzoic acid of the Ph. Fr. V is to be colorless and deprived of all odor; it is therefore the artificial acid which is to be employed. In Belgium one may likewise employ the natural acid of benzoin.—Bull. Soc. roy. d. pharm. Brux., 1909, v. 53, p. 7.

Barstow, Edwin O. (U. S. patent 939941, Nov. 9, assignor to Dow Chemical Co., Midland, Mich.), outlines a method for the manufacture of benzoates.—Chem. Abstr. Am. Chem. Soc., 1910, v. 4, p. 494.

Jonescu, Anna, discusses the detection of benzoic acid in food-stuffs.—J. d. pharm. et d. chim., Par., 1909, v. 29, pp. 523–525.

In a subsequent note she calls attention to the prior work by Leys.—*Ibid.*, v. 30, p. 16.

See also Fischer and Gruenert.—Ztschr. f. Unters. Nahr. u. Genussm., 1909, v. 17, pp. 721–734.

White and Jones, in discussing the effect of temperature and dilution on the conductivity of organic acids in aqueous solution, present observations on the molecular conductivity and dissociation, also the

temperature coefficients of benzoic acid.—*Am. Chem. J.*, 1909, v. 42, p. 531.

Gane and Webster report that most of the commercial benzoic acid is made from toluene and not, as some of our pure-food cranks would have us believe, from urine. There is good reason to believe that much of the so-called "true acid from gum benzoin" never saw gum, but is artificially flavored.—*Drug Topics*, New York, 1909, v. 24, p. 325.

Eccles, R. G., in an article entitled "Benzophobia" reviews the history of objections made to benzoic acid and salicylic acid as preservatives.—*Ibid.*, pp. 243-244.

v. Vietinghoff-Scheel discusses the use of benzoic acid as a preservative and comments on the report of the referee board.—*Chem. Ztg.*, Cöthen, 1909, v. 33, p. 181.

Howes, Pitts Edwin, gives benzoic acid when he finds the urine of rheumatic patients strongly alkaline, with a considerable amount of phosphatic deposit.—*J. Therap. & Dietet.*, Boston, 1908-9, v. 3, p. 218.

Abbott, Solon, asserts that benzoic acid is indicated in cases of rheumatism with tearing pains, as if in the bones, irritable bladder, urine smells like that of a horse.—*Ibid.*, p. 204.

#### ACIDUM BORICUM.

A committee of Section III, Second International Congress for the Suppression of Adulterations (Paris, 1909), suggests that boric acid should be at least 99 per cent pure; that the water of occlusion should not exceed 0.50 per cent; that it may contain impurities not exceeding 0.50 per cent by weight, consisting of small quantities of sodium chloride and calcium chloride (tested in 100 cc. of a solution saturated at 15°); it should be entirely free from organic matters.—*Bull. sc. pharmacol. Par.*, 1909, v. 16, p. 423.

Schamelhout, A., states that it is necessary to tolerate a rather large amount of chlorides. The Ph. Belg. III has been obliged to require the absence of organic matters in boric acid.—*Bull. Soc. roy. d. pharm. Brux.*, 1909, v. 53, p. 179.

Umney, J. C., thinks the absence of a requirement with regard to lead in boric acid is an extremely important omission.—*Chem. & Drug.*, 1909, v. 75, p. 581.

The committee of reference in pharmacy asserts that acidum boricum should form a clear solution with water. Titration by Thomson's method to indicate at least 98 per cent of boric acid.—*Ibid.*, v. 74, p. 288.

An unsigned note points out that the efficacy of the form of boric acid commonly sold (large, glistening, tubular crystals) has long been a question of doubt. Solutions ferment and bacteria are abundant. M. M. Bay has recently investigated the matter, and found that com-



mercial samples all contained albumen in which microorganisms abounded. On inquiry he discovered that manufacturers are in the habit of adding from 3 to 5 per mille of blood or egg albumen to promote crystallization and insure the sparkling appearance.—Pharm. J., Lond., 1909, v. 28 (82), p. 74.

Arndt, Kurt, presents a contribution to the gravimetric estimation of boric acid.—Chem. Ztg., Cöthen, 1909, v. 33, pp. 725–726.

Tretzel, Friedrich, discusses the volumetric estimation of boric acid and outlines a method.—Pharm. Ztg., Berl., 1909, v. 54, p. 386.

Alpers, K., reviews some of the recent literature on the qualitative determination of boric acid in foodstuffs and fats.—*Ibid.*, pp. 376–377.

Mandelbaum, R., discusses the quantitative estimation of boric acid as methyl borate.—Ztschr. f. anorg. Chem., 1909, v. 62, pp. 364–369.

Copaux and Boiteau discuss the comparative value of several methods for the estimation of boric acid.—Bull. Soc. chim., Par., 1909, v. 5, pp. 217–225.

H. S. presents a résumé of various methods for the determination of boric acid.—Schweiz. Wchnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, pp. 597–599.

Gane and Webster assert that boric acid should form a clear solution in water, though many specimens do not, showing careless manufacture. They think that in view of the frequently expressed desire to diminish the bulk of the U. S. P. the purely chemical descriptive matter appearing before the test for purity might be omitted. The rubric provides for an acid of 99.8 per cent purity. They think this is rather high, a purity of 99.5 per cent being amply sufficient for medical purposes.—Drug Topics, New York, 1909, v. 24, p. 325.

Pearson, W. A., found that about 25 per cent of commercial powdered boric acid will pass through a No. 120 sieve, and about 16 per cent fails to pass through a No. 96 sieve.—Proc. Pennsylvania Pharm. Ass., 1909, p. 178.

Arny, H. V., reports on 11 samples of boric acid examined, all of which were up to the requirements of the U. S. P. VIII.—Proc. Ohio Pharm. Ass., 1909, p. 66.

Scovell, M. A., reports boric acid containing sulphates and calcium.—Rep. Kentucky Agric. Exper. Sta. (1908–9), 1910, p. 7.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 16) report examining 126 samples, the only impurities being arsenium, lead, sulphuric and, very rarely, hydrochloric acid. Only one sample showed more than 4 parts of arsenic per million. Lead was present from less than 10 parts per million to 70 parts per million. No sample gave less than 99 per cent purity by Thompson's method of titration.

Southall Bros. & Barclay (Rep. 1908–9, Birmingham, 1910, p. 28) noted very considerable improvement in boric acid with respect to

lead and arsenic; in no instance has the proportion of the latter exceeded 4 parts per million.

Pleijel, Carl., reports that of 25 samples of boric acid he examined only 5 were absolutely pure. The remaining 20 contained traces of chlorine, hydrochloric acid, or sulphuric acid.—*Svensk. farm. Tidskr.*, 1909, v. 13, p. 339.

The Belgian inspectors of pharmacies report boric acid contaminated by organic matters and by traces of chlorides or of sulphuric acid.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 284.

Schamelhout, A., remarks that the Ph. Belg. III has neglected to provide against the presence of organic matters.—*Bull. Soc. roy. d. pharm. Brux.*, 1909, v. 53, p. 233.

Mittelbach, William, asserts that the formula for ointment of boric acid makes a nice product. With the rose water ointment as a base, boric acid makes a better preparation and simplifies the manipulation.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 817.

The Belgian inspectors of pharmacies report that there is sold as boric ointment a pomade made with vaselin and, at other times, an ointment containing water, prepared with hydrous wool-fat.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 589.

Schamelhout, A., says that boric vaselin and boric ointment should be dispensed under their respective names. There is no excuse for the pharmacist who does otherwise. Physicians frequently prescribe boric vaselin.—*Bull. Soc. roy. de pharm. Brux.*, 1909, v. 53, p. 261.

Forster discusses the use of boric acid as a preservative, more particularly in connection with its use for the preservation of crabs.—*Hyg. Rundschau*, 1909, v. 19, pp. 169–186.

Harbert, J. P., recommends the saturated lukewarm solution of boric acid as an antiseptic, stimulant, and soothing eyewash, as a convenient vehicle in which to dispense many other eye remedies such as atropine, cocaine, hamamelis, hydrastis, etc. As an ointment he uses 10 grains to the ounce of white vaselin.—*Eclectic M. J.*, Cincin., 1909, v. 69, p. 529.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 86–87) points out that, in many cases of disease of the urinary passages, one of the objects of treatment is to use medicinal means of preventing the urine from reaching the bladder in an alkaline state. The best means of giving the urine an acid reaction is said by Etterlen to be boric acid.

#### ACIDUM CAMPHORICUM.

Capps, Pratt, McCrae, and Halsey, recommend the deletion of acidum camphoricum from the U. S. P.—*J. Am. M. Ass.*, 1909, v. 53, p. 792.

Gane and Webster assert that camphoric acid is not sufficiently prescribed to warrant its retention in the Pharmacopœia.—*Drug Topics*, New York, 1909, v. 24, p. 325.

Komppa, Gust., presents a second contribution on the total synthesis of camphoric acid and camphor, and describes the several steps necessary.—*Ann. d. Chem. Leipz.*, 1909, v. 370, pp. 209–233.

#### ACIDUM CITRICUM.

Chace, E. M., in a comprehensive report on the by-products of the lemon in Italy, discusses the production of citrate of lime and of citric acid.—*Bull. No. 160, Bur. Plant Ind., U. S. Dept. Agric.*, 1909, p. 45. See also *J. Ind. and Eng. Chem.*, 1909, v. 1, pp. 18–27.

Herzog and Polotzky report observations on citric acid fermentation.—*Ztschr. f. physiol. Chem.*, 1909, v. 59, pp. 125–128.

A committee of Section III, Second International Congress for the Suppression of Adulterations (Paris, 1909), suggests that after incineration citric acid should leave a residue of not more than 0.10 per cent (tested on 5 gm.); and that it may contain traces of sulphates and of salts of lime and magnesia (tested on the residue).—*Bull. sc. pharmacol., Par.*, 1909, v. 16, 423.

Schamelhout, A., notes that the Ph. Belg. III tolerates 0.50 per cent of ash. It should not tolerate the presence of lime salts and but a bare trace of lead. The “etc.” (referring to impurities) should be specified. It is altogether too vague.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 179.

The committee of reference in pharmacy suggests that tests for lead be provided for acidum citricum.—*Chem. & Drug., Lond.*, 1909, v. 74, p. 288.

Gane and Webster assert that a test should be introduced to insure the absence of excessive traces of lead in citric acid, as lead is almost invariably present in the commercial article.—*Drug Topics*, New York, 1909, v. 24, p. 325.

Jørgensen, Gunner, outlines a method for determining citric acid in the presence of succinic acid, malic acid, and tartaric acid.—*Ztschr. f. Unters. Nahr. u. Genussm.*, 1909, v. 17, p. 399.

Gadais, L. et J., outline a novel method for the analysis of citrate of lime and of lemon juice.—*Bull. Soc. chim., Par.*, 1909, v. 5, pp. 287–289.

Scovell, M. A., reports citric acid containing heavy metals and sulphates.—*Rep. Kentucky Agric. Exper. Sta.* (1908–9), 1910, p. 7.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 21) report on more than 40 samples of citric acid: Purity from 99.6 to 100 per cent; ash, 0.02 to 0.13 per cent; lead, 5 to 20 parts per million; arsenic not above 1 part per million.

Southall Bros. & Barclay (Rep. 1908-9, Birmingham, 1910, p. 29) again find citric acid to be one of the purest chemical products they have to examine. In testing a very large number of samples they have never found the amount of lead to exceed 5 parts per million, or of arsenic to exceed 0.5 per million.

The examination of drug samples in 1907 showed that of 199 samples of citric acid examined 2 were found adulterated or not up to standard.—Pharm. J., Lond., 1909, v. 28 (82), p. 182.

The fourteenth annual report of the Local Government Board for Scotland reports 11 samples of citric acid examined; 1 was found to be adulterated.—Chem. & Drug., Lond., 1909, v. 75, pp. 17-18.

The Belgian inspectors of pharmacies report that the reaction for the detection of lead, made under the conditions prescribed by the pharmacopœia sometimes exceeds the limits permitted.—J. d. pharm. d'Anvers, 1909, v. 65, p. 584.

Posey, H. G., thinks that saccharated citric acid should be dropped from the N. F. and that instructions covering its manufacture could be incorporated under the heading "Pulveres effervescentes."—Proc. Am. Pharm. Ass., 1909, v. 57, p. 983.

Members of the Baltimore branch point out that acidum citricum saccharatum N. F., on account of the presence of sugar does not keep.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 55.

An editorial (Therap. Gaz., 1909, v. 33, p. 551) discusses the value of calcium chloride and citric acid for the purpose of influencing the coagulability of the blood, and quotes Addis's conclusion that any attempt to influence the coagulation of blood by the use of these substances when given by the stomach is futile.

#### ACID DIETHYLBARBITURIC.

Mannich and Rosenmund, in a contribution to the theory and action of hypnotics, discuss the chemistry of diethyldiketopiperazin and of veronal.—Arb. a. d. pharm. Inst. d. Univ. Berl., (1909) 1910, v. 7, pp. 178-180.

The London Correspondent (J. Am. Ass., 1909, v. 53, p. 1833) states that the public have no difficulty in obtaining hypnotic veronal in the form of tablets from the druggists. A considerable number of deaths following the use of the drug has now been recorded, and in several cases the dose taken was by no means large—10 or 15 grains. In one fatal case the subject, a well known physician, the son-in-law of an eminent London surgeon, died in the prime of life.

At an inquest on the death of a woman from the use of veronal, the husband, a physician, declared it was a wicked thing that such tablets could be purchased as they had been.—Pharm. J., Lond., 1909, v. 29 (83), p. 279.

The Lancet (1909, v. 176, p. 1496) reports an inquest at Uxbridge on the body of a man who was alleged to have died from an overdose of veronal, and closes with a warning that the administration of this as of all other hypnotics, should be watched. The public appear to be too fond of prescribing veronal for themselves. For further notes on this case see page 1557.

Reich and Herzfeld discuss the use of veronal in the vomiting of pregnancy and report a number of cases. They assert that disagreeable after effects have never been seen.—Merck's Arch., 1909, v. 11, pp. 43-44.

Waugh, William, discusses the indication for veronal in the morphine habit.—*Ibid.*, pp. 341-342.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 342-345) reviews some of the recent literature relating to the use of veronal.

Additional references on the pharmacology and uses of veronal will be found in Index Medicus and J. Am. M. Ass.

#### ACIDUM GALLICUM.

The committee of reference in pharmacy assert that gallic acid gives no precipitate with tartarated antimony.—Chem. & Drug., Lond., 1909, v. 74, p. 288.

White and Jones, in discussing the effect of temperature and dilution on the conductivity of organic acids in aqueous solution, present observations on the molecular conductivity and dissociation, also the temperature coefficients of gallic acid.—Am. Chem. J., 1909, v. 42, p. 532.

#### ACIDUM HYDRIODICUM DILUTUM.

Dunn, John A., presents a modified formula for diluted hydriodic acid in which a solution of iron iodide is decomposed by barium hydrate and the resulting barium iodide subsequently decomposed by sulphuric acid.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 943.

Lehn & Fink (Annual Report for 1909, pp. 5-6) discuss the waste of alcohol and consequent cost of the production of hydriodic acid by the U. S. P. method and recommend the use of the old, direct method of combining the hydrogen of  $H_2S$  with iodine in the presence of water.

Pollitzer, F., in a discussion on the dissociation of hydrogen sulphide by means of iodine, illustrates the production of hydriodic acid and discusses the relative solubility of the several compounds in water.—Ztschr. f. anorg. Chem., 1909, v. 64, pp. 121-148.

Nixon, C. F., asserts that in making sirup of hydriodic acid it is necessary that chemicals of the highest purity be used, otherwise the sirup may be yellow in color. Potassium iodide in crystals should

be used rather than the granulated.—Apothecary, 1909, v. 21, April, p. 18.

Bordeaux thinks a 2 per cent sirup of hydriodic acid will give the same effects as will iodotannic sirup and without the disagreeable effects of the tannin on the organism.—J. d. pharm. d'Anvers, 1909, v. 65, pp. 507-517.

#### ACIDUM HYDROBROMICUM DILUTUM.

Fleissig, Paul, points out that the Ph. Fr. V requires that hydrobromic acid contain 10 per cent, while the Ph. Germ. requires 25 per cent of absolute acid.—Therap. Monatsh., Berl., 1909, v. 23, p. 275.

The committee of reference in pharmacy suggests that for acidum hydrobromicum a test for lead be provided (5 parts per million).—Chem. & Drug., Lond., 1909, v. 74, p. 288.

#### ACIDUM HYDROCHLORICUM.

Hart, Edward, in discussing the nomenclature of chemical reagents points out that the available brands of hydrochloric acid are labeled hydrochloric acid, hydrochloric acid, C. P., and hydrochloric acid strictly C. P. The latter term is also, he believes, a New York invention, and he points out that the more sensible and honest practice would be to label the purest article simply hydrochloric acid, ordinary hydrochloric acid would be labeled "Commercial," or "Contains Sulphuric acid," or some other appropriate form of words.—Chem. Eng., 1909, v. 9, p. 52.

v. Kéler, H., reviews the literature relating to the progress made in the production of hydrochloric acid during 1908.—Ztschr. f. ang. Chem., 1909, v. 22, p. 1400.

Hart, Edward, points out that the Mannheim mechanical furnace is successfully used in the manufacture of hydrochloric acid in America.—Proc. VIIth Internat. Congress App. Chem., Sec. II., Inorganic Chemistry, 1909, Lond., 1910, p. 164.

Fleissig, Paul, notes that the Ph. Fr. V requires that hydrochloric acid contain 33 per cent, while the Ph. Germ. requires 25 per cent of absolute hydrochloric acid.—Therap. Monatsh., Berl., 1909, v. 23, p. 275.

Düsterbehn points out that the Ph. Fr. V dilute hydrochloric acid contains 10 per cent, while the corresponding acid official in the Ph. Germ. IV, contains 12.5 per cent absolute acid.—Apoth. Ztg., Berl., 1909, v. 24, p. 228.

A committee of the Syndicat général de la Droguerie française asks that traces of iron be tolerated in hydrochloric acid.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 288.

Poulenc Frères state that it is practically impossible to obtain a product which is not colored by potassium sulphocyanide.—*Ibid.*, p. 408.

The committee of reference in pharmacy suggest that for acidum hydrochloricum, the solid residue should not exceed 0.01 per cent. Tests for lead (10 parts per million).—Chem. & Drug., Lond., 1909, v. 74, p. 288.

Gooch and Read discuss the electrolytic determination of chlorine in hydrochloric acid with the use of the silver anode.—Am. J. Sc., 1909, v. 28, pp. 544-552.

Rupert, Frank F., reports a study of the system hydrogen, chloride, and water, describes the apparatus and general procedure employed, and reports his results in the form of tables and diagrams.—J. Am. Chem. Soc., 1909, v. 31, pp. 851-866.

Hulett and Bonner outline a method for preparing standard hydrochloric acid solution.—*Ibid.*, pp. 390-393. See also Chem. News, Lond., 1909, v. 100, pp. 167-168.

Smith, George McPhail, reports observations on a phenomenon observed in the action of hydrochloric acid on very dilute alkali amalgams.—J. Am. Chem. Soc., 1909, v. 31, pp. 31-35.

Patch, E. L., asserts one lot contained 0.145 per cent  $As_2O_3$ . Different lots assayed from 29.45 to 35.56 per cent HCl.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 730.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 34) report that the commercial acid sold as fulfilling the requirements of the Pharmacopœia usually does so. The majority of supplies examined contained about 1 part of arsenic per million.

Pleijel, Carl, reports that practically all of the commercial samples of hydrochloric acid examined by him contained arsenic.—Svensk. farm. Tidskr., 1909, v. 13, p. 337.

Ehrmann and Lederer (Berl. klin. Woch., 1908, No. 31) report that, according to their experience, the idea that hydrochloric acid is a specific exciter of pancreatic function is a mistaken one. This acid only reduces the alkalinity for the protection of the intestinal mucosa against the action of the acid.—Nouv. remèdes, Par., 1909, v. 25, p. 17.

#### ACIDUM HYDROCYANICUM DILUTUM.

Voerkelius, G. A., discusses experiments in the production of hydrocyanic acid from ammonia and wood charcoal; also from di- and trimethylamin.—Chem. Ztg., Cöthen, 1909, v. 33, pp. 1078-1081.

Gane and Webster assert that owing to the rapidity with which diluted hydrocyanic acid deteriorates, especially under ordinary conditions of storage, the revision committee did well to include a process for its extemporaneous preparation, though they doubt if it is utilized by many pharmacists.—Drug Topics, New York, 1909, v. 24, p. 325.

Dohme and Engelhardt report rejecting 2 lots of hydrocyanic acid assaying below 2 per cent HCN.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 715.

Guerin and Gonet discuss the method of Buignet for the estimation of hydrocyanic acid and the standardization of cherry laurel water. They offer a correction and a modification.—*J. d. pharm. et d. chim., Par.*, 1909, v. 29, pp. 234–236. See also *Apoth. Ztg., Berl.*, 1909, v. 24, p. 276.

Fleissig comments on the determination of hydrocyanic acid in aqua laurocerasi, and points out that the commercial cherry laurel water does not comply with the Ph. Helv. IV requirements.—*Schweiz. Wchnschr. f. Chem. u. Pharm., Zürich*, 1909, v. 47, pp. 33–34.

Runne, H., presents a comparative study on the estimation of hydrocyanic acid in bitter almond water. He reviews the several methods that have been proposed from time to time and gives numerous references to the literature.—*Apoth. Ztg., Berl.*, 1909, v. 24, pp. 288ff.

Dixon, W. E., asserts that hydrocyanic acid is a drug largely prescribed as a local anæsthetic for the relief of gastric pain, although the amount of acid given is too small to have any of the local effects credited to it.—*Brit. M. J.*, 1909, v. 2, p. 540.

#### ACIDUM HYPOPHOSPHOROSUM.

Gane and Webster point out that the 30 per cent hypophosphorous acid was introduced at the last revision, but fancy there is more call for the 50 per cent acid, which is a regular article of commerce. Care should be taken to secure absence of calcium oxalate, which is often present. Inasmuch as the stronger acid is not used for medicinal preparations, there is no great necessity for including it in the U. S. P.—*Drug Topics*, New York, 1909, v. 24, p. 325.

Cornec, E., discusses the formula for hypophosphorous acid and reports a cryoscopic study of the acid and its salts.—*Bull. Soc. chim., Par.*, 1909, v. 5, pp. 1121–1126.

Rosenheim and Pinsker discuss the determination of hypophosphorous acid, also of phosphorous acid with hypophosphorous acid or in connection with phosphoric acid.—*Ztschr. f. anorg. Chem.*, 1909, v. 64, pp. 327–331.

Dott, D. B., points out that when the ordinary medicinal hypophosphorous acid is used for such a purpose as the reduction of a mercury compound in presence of alcohol, there is liability to a considerable precipitate from the acid itself.—*Chem. & Drug., Lond.*, 1909, v. 74, p. 928.

Diehl, C. L., remarks that the formula for hypophosphorous acid N. F. was retained as a convenience when the acid is not available.



He also reports from the committee on N. F. the recommendation that hypophosphorous acid be dropped.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1060.

Posey, H. G., points out that hypophosphorous acid is official in the U. S. P. and consequently should be omitted.—*Ibid.*, p. 983.

### ACIDUM LACTICUM.

McLauchlan, W. H., discusses the production and use of lactic acid in America.—Proc. VIIth Internat. Congress App. Chem., Sec. IVa 1, Organic Chemistry, 1909, London, 1910, pp. 141-149.

The committee of reference in pharmacy suggest that the incineration description for acidum lacticum be shortened, because there is no object in minutely describing what takes place. They recommend a test for lead (10 parts per million).—Chem. & Drug., Lond., 1909, v. 74, p. 288.

Schamelhout, A., states that the lactic acid of the Ph. Fr. V. should have a density of 1.24; in Belgium it should be 1.21 to 1.22.—Bull. Soc. roy. d. pharm. Brux., 1909, v. 53, p. 56.

Merck, E. (Darmstadt), criticizes the requirement of the Ph. Fr. V, which states that 4 gm. lactic acid of sp. gr. 1.25 at 15° should correspond to 44.44 cc. normal soda solution under prescribed conditions. Repeating the test with an acid of sp. gr. 1.24, he got a reading of 47.16 cc. of normal soda, representing 106.1 per cent lactic acid. He explains that by the method of the Codex one titrates not only the actual lactic acid ( $C_3H_5O_3$ ), but the lactic anhydride present in greater or less quantity in all the concentrated lactic acid of commerce, in particular lactyllactic acid, thus accounting for the higher reading. He cites R. Kuntz (Ztschr. d. allg. österr. Apoth.-Ver., 1901, p. 186).—Bull. sc. pharmacol. Par., 1909, v. 16, p. 550.

Denigès, G. (Bull. Soc. d. Pharm. d. Bordeaux, 1909, p. 193), describes a very sensitive reaction for lactic and glycolic acids based upon the reduction of ordinary aldehyde under the influence of appropriate oxidizing agents.—Ann. d. pharm., Louvain, 1909, v. 15, p. 209.

Genassini, Domenico, discusses the photochemical decomposition of lactic acid.—Boll. chim. farm. Milan, 1909, v. 48, pp. 785-791.

Dohme and Engelhardt report finding lactic acid on several occasions to be slightly below standard, assaying 74, 73, and 72 per cent as compared with 75 per cent of absolute lactic acid required.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 716.

Scoville, W. L., reports on four lots lactic acid assaying 75.1 to 77.4 per cent pure.—*Ibid.*, p. 730.

Heinemann, P. G., concludes that the usefulness of lactic acid or lactic ferments as curative agents for intestinal putrefaction is still

problematical, and urges that exact scientific investigations of a decisive character be undertaken.—J. Am. M. Ass., 1909, v. 52, pp. 372-376. See also pp. 397-398.

#### ACIDUM NITRICUM.

v. Kéler, H., reviews the literature relating to the progress made in the production of nitric acid during 1908.—Ztschr. f. ang. Chem., 1909, v. 22, pp. 1401-1406.

Frazier, Schuyler, in a general article on nitric acid, discusses the principle uses and trade requirements, the crude materials and methods of manufacture, and some details of manufacture of nitric acid.—Chem. Eng., 1909, v. 10, pp. 160-162.

An unsigned article describes an improved condensing battery for nitric acid.—*Ibid.*, 1909, v. 9, pp. 73-75.

Byk, H., in a French patent specification outlines the manufacture of nitric acid from calcium nitrate.—J. Soc. Chem. Ind., 1909, v. 28, p. 1033.

Guye, Philippe-A., in a monograph (included as Supplement with Bull. Soc. chim., Par., 1909, v. 5, pp. xlviii) discusses the uses of nitrates and of nitric acid and presents a review with illustrations of the present status of the fixation of atmospheric nitrogen.

Eyde, Sam, describes the manufacture of nitrates from the atmosphere by the electric arc.—Pharm. J., Lond., 1909, v. 28 (82), pp. 859-861. See also Sc. Am. Suppl., 1909, v. 68, pp. 9-11.

Bernthsen discusses the production of nitric acid from atmospheric nitrogen and describes and illustrates the process as followed at Christiansand, Norway.—Ztschr. f. ang. Chem., 1909, v. 22, p. 1167-1178. See also Oesterr. Chem. Ztg., Wien, 1909, v. 12, pp. 46-47.

Carpenter, F. B., discusses the fixation of nitrogen and the importance of the inventions relating thereto.—J. Ind. Eng. Chem., 1909, v. 1, pp. 4-5.

Russ, Franz, discusses the production of nitric acid from air and describes with illustrations the process used in Austria.—Oesterr. Chem. Ztg., Wien, 1909, v. 12, pp. 142-145.

The same author also discusses the present status of the manufacture of nitric acid from atmospheric nitrogen.—*Ibid.*, pp. 291-292.

Schamelhout, A., notes that the officinal nitric acid of the Ph. Fr. V has clearly the same concentration as the Belgian acid. The dilute acid, Ph. Fr. V, should have a density in the neighborhood of 1.056 and contain about one-tenth of its weight of  $\text{HNO}_3$ ; the dilute acid of Belgium should have a density of 1.072 and contain 12.0 per cent of  $\text{HNO}_3$ .—Bull. Soc. Roy. d. pharm. Brux., 1909, v. 53, p. 6.

The committee of reference in pharmacy recommends that the solid residue should not exceed 0.05 per cent. Test for lead is sug-

gested (20 parts per million).—Chem. & Drug., Lond., 1909, v. 74, p. 288.

Paal and Ganghofer discuss the quantitative determination of nitric acid by means of nitron and discuss the complications arising from the presence of dextrin, peptone, and gelatin.—Ztschr. f. anal. Chem., Wiesb., 1909, v. 48, pp. 545–555.

Hes, A., presents a comprehensive study on the gravimetric estimation of nitric acid by means of nitron, and calls attention to a number of other substances that give insoluble precipitates with this reagent.—*Ibid.*, pp. 81–98.

Busch, M., discusses the gravimetric estimation of nitric acid, and comments on several of the exceptions made in the contribution by A. Hes.—*Ibid.*, pp. 368–370.

Pearson, W. A., found only one sample of nitric acid which did not fulfill all U. S. P. requirements; this sample had a strength of 67.4 instead of 68 per cent.—Proc. Pennsylvania Pharm. Ass., 1909, p. 178.

#### ACIDUM NITROHYDROCHLORICUM DILUTUM.

Fussell, M. H., in recommending that diluted nitrohydrochloric acid be deleted from the Pharmacopœia, asserts that this substance is notoriously useless when kept for any length of time.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 203.

#### ACIDUM OLEICUM.

The committee of reference in pharmacy assert that official tests are too stringent for acidum oleicum. Their experiments are now in progress.—Chem. & Drug. Lond., 1909, v. 74, p. 288.

Dunn, John A., believes that the U. S. P. VIII congealing point requirement for oleic acid has too wide a range and the resulting preparations will vary much in consistency.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 943.

An editorial (N. A. R. D. Notes, 1909, v. 9, p. 472) comments on the variability of commercial oleic acid and points out that there is considerable talk at the present time that many tests of the Pharmacopœia are too severe, and this is true to some extent; but with such drugs, preparations, or chemicals which should be "chemically pure," and of which oleic acid is one, the tests should be made still more severe in order that a chemically pure product may be purchased when it is wanted.

Manea, A. (Bul. Soc. d. Stiente d. Bucuresti, 1908, xvii, p. 256), describes a color reaction for oleic acid.—J. d. pharm. et d. chim., Par., 1909, v. 29, p. 545.

Dohme and Engelhardt report rejecting a shipment of oleic acid because it contained an excessive amount of solid fatty acids.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 717.

Pearson, W. A., found one sample of oleic acid which deposited a precipitate on standing.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 178.

Watters, Henry, calls attention to some pharmaceutical uses of oleic acid and presents formulas for "Petroliniment," a preparation essentially the same as saponated petrolatum.—*Canad. Pharm. J.*, Toronto, 1909-10, v. 43, pp. 87-88.

#### ACIDUM PHOSPHORICUM.

Gane and Webster think that it would be advisable to have all strong acids mentioned in the various pharmacopœias of uniform strength, and this should be the highest strength found in commerce. The U. S. P. phosphoric acid contains 85 per cent, the Ph. Brit. acid 66.3 per cent, and the Ph. Germ. acid only 25 per cent. The strongest phosphoric acid found in commerce is that of specific gravity 1.750, corresponding to about 90 per cent of ortho-phosphoric acid. A test should be inserted to insure absence of silica.—*Drug Topics*, New York, 1909, v. 24, p. 326.

Schamelhout, A., states that in the Ph. Fr. V the official phosphoric acid or the official solution of phosphoric acid contains 50 per cent of tribasic phosphoric acid ( $D.=1.349$ ). The diluted phosphoric acid contains about one-tenth of its weight of tribasic phosphoric acid ( $D.=1.057$ ) and corresponds to the phosphoric acid of the Ph. Belg. III.—*Bull. Soc. roy. d. pharm. Brux.*, 1909, v. 53, p. 71.

The committee of reference in pharmacy assert that it is not desirable to substitute an acid of sp. gr. 1.75 for acid. phosphoric. conc. Test for lead is recommended (10 parts per million).—*Chem. & Drug.*, Lond., 1909, v. 74, p. 288.

Wiley, H. W., points out that the glacial phosphoric acid on the market is not a single substance but a mixture of meta-, para-, and ortho-phosphoric acids, together with more or less sodium phosphate, which is evidently added for the purpose of causing solidification of the product.—*Ann. Rep. U. S. Dept. Agric. for 1909*, 1910, p. 431.

Pouget and Chouchak discuss the colorimetric estimation of phosphoric acid.—*Bull. Soc. chim., Par.*, 1909, v. 5, pp. 104-109.

The gravimetric molybdate method for the determination of phosphoric acid, proposed at the Seventh International Congress of Applied Chemistry at London is reprinted.—*Chem. News*, London, 1909, v. 100, p. 1.

Estes, Clarence, outlines a method for the volumetric estimation of phosphates in solution with other salts.—*J. Am. Chem. Soc.*, 1909, v. 31, pp. 247-250.

Wilkie, John M., discusses the volumetric determination of phosphoric acid, mono-alkali, and di-alkali phosphates, by means of silver nitrate.—*J. Soc. Chem. Ind.*, 1909, v. 28, pp. 68-69.

Van Dormael, Joseph, presents a contribution to the study of the estimation of soluble phosphoric acid in water and in superphosphates. A comparative study of four methods shows that that of Pellet gives better results than the ordinary methods.—*Ann. d. pharm. Louvain*, 1909, v. 15, pp. 433-445, 486-501.

Plücker, W., discusses the estimation of phosphoric acid in ash, reviews some of the literature, enumerates the reagents necessary, and outlines the method to be employed.—*Ztschr. f. Unters. Nahr. u. Genussm.*, 1909, v. 17, pp. 446-454.

Sieverts, Adolf, reports observations on the reducing action of phosphoric and of hypophosphorous acids.—*Ztschr. f. anorg. Chem.*, 1910, v. 64, pp. 29-64.

Phillips, Harry Edward William, reports observations on the electrical conductivity of phosphoric acid.—*J. Chem. Soc., Lond.*, 1909, v. 95, pp. 59-66.

The A. Ph. A. committee on the drug market quote phosphoric acid as an interesting illustration of unintentional variation from standard.—*Drug Topics*, New York, 1909, v. 24, p. 372.

Pearson, W. A., found three lots of phosphoric acid which contained heavy metals, but less than former shipments.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 178.

The Belgian inspectors of pharmacies report that they still often find the 50 per cent phosphoric acid of the old pharmacopœia, instead of 10 per cent.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 584.

Cautru discussed before the Therapeutic Society the employment of phosphoric acid in diabetes.—*J. d. pharm. et d. chim., Par.*, 1909, v. 29, p. 597.

Additional references on the chemistry of phosphoric acid will be found in *Chem. Abstr.* *Am. Chem. Soc. and Exp. Sta. Rec.*

#### ACIDUM SALICYLICUM.

The White Cross Congress held in Paris in October, 1909, suggests that the ash in salicylic acid should not exceed half a milligram in half a gram.—*Chem. & Drug. Lond.*, 1909, v. 75, p. 681.

The committee of reference in pharmacy recommend that the ammonium citrate test for acidum salicylicum be omitted, as it serves no useful purpose.—*Ibid.*, 1909, v. 74, p. 288.

Seidell, Atherton, reports a study of the methods for the determination of salicylates and outlines a modification of the bromate method.—*J. Am. Chem. Soc.*, 1909, v. 31, pp. 1168–1177. See also *Proc. VIIth Internat. Congress App. Chem., Sec. VIIIb, Pharmacy*, 1909, London, 1910, pp. 119–120.

The same author points out that the U. S. P. requires that salicylic acid be soluble in 308 parts of water, his results would indicate that it is soluble in 453 parts of water. The official solubility in alcohol is 2 parts, his results would indicate that it is soluble in 2.13 parts.—*J. Am. Chem. Soc.*, 1909, v. 31, p. 1168, and *Proc. VIIth Internat. Congress App. Chem., Sec. VIIIb, Pharmacy*, 1909, London, 1910, p. 119.

Yanagisawa outlines a colorimetric method for the determination of salicylic acid in saké.—*J. Pharm. Soc., Japan*, 1909, p. 100.

White and Jones, in discussing the effect of temperature and dilution on the conductivity of organic acids in aqueous solution, present observations on the molecular conductivity and dissociation, also the temperature coefficients of salicylic acid.—*Am. Chem. J.*, 1909, v. 42, p. 532.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 48) report on 2 samples of salicylic acid which were found to be of inferior quality, containing traces of iron and melting at 155° and 155.5° C. Five other consignments possessed melting points lying between 157° and 158° C.

The Belgian inspectors of pharmacies report that they sometimes find salicylic acid contaminated by a little benzophenol.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 584.

Haynes, G. S., discusses the medicinal and chemical preparations of salicylic acid and its derivatives.—*Folia Therap., Lond.*, 1909, v. 3, pp. 13–14.

Earp (*New York Med. J.*) asserts that salicylic acid may be given in milk to improve the palatability, and this also prevents gastric irritation.—*Meyer Bros. Drug., St. Louis*, 1909, v. 30, p. 117.

Gane and Webster point out that pure artificial salicylic acid is identical in its physiological action with the so-called natural acid from wintergreen oil, the claims of interested manufacturers to the contrary notwithstanding.—*Drug Topics*, New York, 1909, v. 24, p. 326.

The editor of the *Therapeutics* column (*J. Am. M. Ass.*, 1909, v. 53, p. 385) asserts that the salicylic acid prepared from vegetables is but little depressant, and perhaps not at all depressant, to the heart, while synthetic salicylic acid is depressant to the heart and should never be given internally.

Hale, Worth, in a report of an experimental study on the influence of certain drugs upon the toxicity of acetanilide and antipyrine,

discusses the action of salicylic acid upon the toxicity of these drugs.—Bull. Hyg. Lab., U. S. P. H. and M.-H. S., 1909, No. 53, p. 57.

Burnett, J. A., asserts that salicylic acid is far superior to quinine in the treatment of rhus poisoning.—Eclectic M. J., Cincin., 1909, v. 69, p. 188.

Abbott, Solon, asserts that salicylic acid is indicated in cases of rheumatism when there is pain, swelling, and redness, especially affecting the joints. Great acidity of stomach, irritability, and despondency.—J. Therap. & Dietet., Boston, 1908-9, v. 3, p. 205.

Racine, R., discusses the use of salicylic acid as a preservative and calls attention to some recent decisions both in Germany and in the United States along this line.—Ztschr. f. öffentl. Chem., 1909, v. 15, pp. 221-224.

Sargeant, F. Pilkington, asserts that salicylic acid is used occasionally as a bactericide by agriculturists and apiarists.—Pharm. J., Lond., 1909, v. 29 (83) p. 237.

Additional references on the chemistry, pharmacology, and uses of salicylic acid will be found in Chem. Abstr. Am. Chem. Soc., Index Medicus, and J. Am. M. Ass.

#### ACIDUM STEARICUM.

Scoville, W. L., reports the melting point of stearic acid as 55.5° to 56.6° C. For some purposes a purified acid is necessary.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 730.

Dohme and Engelhardt find that the melting point of commercial stearic acid varies considerably.—*Ibid.*, p. 718.

Pearson, W. A., found the melting point of three lots of stearic acid to be 1° below the U. S. P. limit; one sample had a slight, objectionable odor.—Proc. Pennsylvania Pharm. Ass., 1909, p. 178.

#### ACIDUM SULPHURICUM.

The committee of reference in pharmacy suggests that the solid residue for acidum sulphuricum should not exceed 0.05 per cent. A test for lead is recommended (20 parts per million).—Chem. & Drug., Lond., 1909, v. 74, p. 288.

v. Kéler, H., reviews the literature relating to the progress made in the production of sulphuric acid.—Ztschr. f. ang. Chem., 1909, v. 22, pp. 1397-1399.

Hart, Edward, calls attention to progress made in America in the manufacture of sulphuric acid.—Proc. VIIth Internat. Congress App. Chem., Sec. II, Inorganic Chemistry, 1909, London, 1910, p. 164.

Bruce-Kingsmill, Major J., reports some observations on recent improvements in the methods of intensive working in the production of sulphuric acid.—*Ibid.*, pp. 161-163.

An unsigned article discusses the manufacture of sulphuric acid, and describes some of the modifications in the working of the several processes that are now used.—*Paint, Oil & Drug Review*, 1909, v. 48, October 13, p. 22.

Meyer, Theodor, discusses the production of sulphuric acid in Glover's tower and the energy required.—*Ztschr. f. ang. Chem.*, 1909, v. 22, pp. 1841–1844.

Falding, Frederic J., describes with illustrations a modern high chamber sulphuric acid plant at Vandergrift, Pa.—*Chem. Eng.*, 1909, v. 10, pp. 89–93.

Porter, H., describes with illustrations the movement of gases in vitriol chambers.—*Chem. Trade J.*, 1909, v. 45, p. 79.

Raschig, F., discusses the estimation of sulphurous acid in the gases of lead chambers.—*Ztschr. f. ang. Chem.*, 1909, v. 22, pp. 1182–1185. See also *Proc. VIIth Internat. Congress App. Chem., Sec. II, Inorganic Chemistry*, 1909, London, 1910, pp. 165–173.

Trey, Heinrich, discusses the technique of the production of sulphuric acid from calcium sulphate, and presents a number of tables giving the practical results of the experiments carried on by him.—*Ztschr. f. ang. Chem.*, 1909, v. 22, pp. 2375–2377.

Kühne, H., in a French patent specification, discusses the removal of sulphurous fumes and their recovery as sulphuric acid.—*J. Soc. Chem. Ind.*, 1909, v. 28, p. 90.

Smith, Thorn, presents an account of some experiments with the ferric oxide contact method of making sulphuric acid from smelter fumes.—*Chem. Eng.*, 1909, v. 9, pp. 37–39.

Sebillot and Maucclair, in an English patent specification, describe an apparatus for the manufacture of dilute sulphuric acid by a contact process.—*J. Soc. Chem. Ind.*, 1909, v. 28, p. 1197.

Friedrich, H., discusses the concentration of sulphuric acid in cast-iron vessels, and points out that this method is not of recent origin.—*Chem. Ztg.*, Cöthen, 1909, v. 33, pp. 478–479.

Sacher, J. F., discusses the estimation of sulphuric acid as barium sulphate.—*Ibid.*, pp. 218–219, also pp. 941–942.

Ljungh, Hjalmar, discusses the estimation of the  $\text{SO}_2$  in the gases escaping in the contact method for sulphuric acid.—*Ibid.*, pp. 143–144.

Gane and Webster agree with Lyons that the amount specified to be taken for titration to determine the acid strength (3 cc. of the acid) is too great, requiring the addition of an unnecessarily large amount of standard alkali. They think 1 cc. would be sufficient.—*Drug Topics*, New York, 1909, v. 24, p. 326.

Brönsted, J. N., in a discussion of the chemical affinity of binary systems, discusses the system of sulphuric acid water.—*Ztschr. f. physik. Chem.*, 1909–10, v. 68, pp. 693–725.



Hantzsch, A., reports observations on the condition of matter in absolute sulphuric acid.—*Ibid.*, 1908-9, v. 65, pp. 41-60. See also Oddo and Scandola.—*Ibid.*, 1909, v. 66, pp. 138-152.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 55) report finding only 1 part of arsenic per million in the several consignments of sulphuric acid examined. They think this a suitable limit for purity for acids intended for pharmaceutical or similar purposes.

Pleijel, Carl, reports that 8 of the 12 samples of commercial sulphuric acid examined by him contained distinct traces of arsenic.—*Svensk. farm. Tidskr.*, 1909, v. 13, p. 338.

#### **ACIDUM SULPHURICUM AROMATICUM.**

Dunn, John A., calls attention to a modification of the U. S. P. formula for aromatic sulphuric acid, which involves mixing the sulphuric acid with a portion of the alcohol and percolating the spices with the cooled mixture, holding back just enough of the alcohol to displace the remaining acid mixture from the spices. The process is a simple and easy one, and the product pharmaceutically unobjectionable and he believes therapeutically superior.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 944.

Bachman, Gustave, found aromatic sulphuric acid to contain 14.85 to 18.03 per cent of sulphuric acid.—*Proc. Minnesota Pharm. Ass.*, 1909, p. 70.

#### **ACIDUM SULPHURICUM DILUTUM.**

Bachman, Gustave, found diluted sulphuric acid to contain from 4.59 to 9.70 per cent of absolute acid.—*Proc. Minnesota Pharm. Ass.*, 1909, p. 70.

#### **ACIDUM SULPHUROSUM.**

Gane and Webster assert that sulphurous acid is not sufficiently used to warrant its retention in the U. S. P. Its administration internally is liable to produce severe irritation and its physiological effects can be better secured by administration of an alkali sulphite.—*Drug Topics*, New York, 1909, v. 24, p. 326.

Dunn, John A., point out that the U. S. P. VIII assay method for sulphurous acid, when followed exactly, does not give uniform results. He recommends a slight change in procedure, by means of which he has secured satisfactory results.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 951.

The committee of reference in pharmacy recommend a test for lead (10 parts per million) for acidum sulphurosum.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 288.

Dohme and Engelhardt report a shipment of sulphurous acid rejected which was unfit for use, containing only 4 per cent of sulphurous acid.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 718.

Dunning, H. A. B., reports an examination of five samples of sulphurous acid and finding from 0.04 to 6.48 per cent of sulphur dioxide. He points out that this is an uncertain preparation at best, and is one of the few that should not be marketed by the manufacturer unless sold direct to the retailer.—*Proc. Maryland Pharm. Ass.*, 1909, p. 91.

Bachman, Gustave, found sulphurous acid to contain from 3.92 to 4.33 per cent of sulphur dioxide.—*Proc. Minnesota Pharm. Ass.*, 1909, p. 71.

#### ACIDUM TANNICUM.

The committee of reference in pharmacy recommend the omission of water of crystallization for acidum tannicum, and assert that tannic acid does not occur in crystalline form.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 288.

Perrot and Goris present an essay on a terminology for the bodies generally known under the name of tannins.—*Bull. sc. pharmacol.*, Par., 1909, v. 16, pp. 189-191.

Niernstein, M., presents a contribution on the constitution of tannin.—*Ber. d. deutsch. chem. Gesellsch.*, Berl., 1909, v. 42, pp. 1122-1126, also pp. 3552-3553.

The same author discusses the optical properties of tannin and points out that the optical activity of this compound does not depend on sugar, but on one of the asymmetric carbon combinations present in the tannin mixture.—*Chem. Ztg.*, Cöthen, 1909, v. 33, p. 126.

Rosenheim, Otto, presents a note on the history of the optical activity of tannin. He points out that Van Tieghem reported on the optical activity of tannin in 1867.—*Ber. d. deutsch. chem. Gesellsch.*, Berl., 1909, v. 42, pp. 2452-2453.

Von Lippmann, Edmund O., points out that Scheibler, in 1866, called attention to the optical activity of tannin.—*Ibid.*, pp. 4678-4679.

Gardner and Hodgson report observations on the action of iodine on phenols, with special reference to a rapid method of estimating tannic acid.—*Proc. VIIth Internat. Congress App. Chem.*, Sec. I, Anal. Chem., 1909, London, 1910, pp. 36-41.

Veitch, F. P., in the referee report on tannin, discusses the methods for the analysis of tanning materials, and outlines some methods proposed for leather analysis.—*Proc. Ass. Off. Agric. Chem.*, 1909. 26th Ann. Conv., pp. 189-192 (*Bull. Bur. Chem. U. S. Dept. Agric.*, 1910, No. 132).

The official method of the American Leather Chemists Association for tannin analysis is given in *J. Am. Leather Chem. Ass.*, 4, 1909, No. 5, pp. 118-138. These methods include directions for taking and

preparing the samples, analysis of extracts, liquors, oils, fats, etc.—*Exper. Sta. Rec.*, 1909, v. 21, p. 212.

Mittelbach, William, asserts that using benzoinated lard as a base in ointment of tannic acid will simplify the work and result in just as good, if not better, product.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 817.

Barton, Wilfred M., calls attention to the fallacy of using tannic acid in internal hæmorrhage. It is decomposed in the intestine into gallic acid, absorbed as a nonastringent and sodium gallate, 99 per cent of which is completely oxidized in the tissues. Gallic acid is quite devoid of astringent property even when locally applied.—*J. Am. M. Ass.*, 1909, v. 52, p. 1559.

### ACIDUM TARTARICUM.

A committee of Section III, Second International Congress for the Suppression of Adulterations (Paris, 1909), suggests an ash limit of not above 0.10 per cent (tested on 5 gm.) and that it may contain traces of sulphates and of salts of lime and manganese (tested on the residue).—*Bull. sc. pharmacol. Par.*, 1909, v. 16, p. 423. See also *Chem. & Drug. Lond.*, 1909, v. 75, p. 682.

Schamelhout, A., notes that the Ph. Belg. III does not tolerate an ash residue (assayed on 0.50 gm.). The tolerance for lead is too great. The drug officinal in Belgium should contain 99.75 per cent of pure tartaric acid. The "etc." (referring to impurities) should be suppressed as noted under citric acid.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 180.

Umney, J. C., points out that at the present time practically all the tartaric acid of commerce in this country contains less than 20 parts of lead per million, and the citric acid less than 5 parts per million, while the test referred to in tartaric acid would in all probability pass as much as 200 parts of lead per million.—*Chem. & Drug.*, 1909, v. 75, p. 581.

The committee of reference in pharmacy assert that a stringent limit should be placed on the amount of total sulphates in tartaric acid.—*Ibid.*, v. 74, p. 288.

Buchanan, G. S., reports that much of the tartaric acid arriving in British markets has not been prepared with the care which its use as a food ingredient demands. He recommends a limit of lead and of arsenic.—*J. Soc. Chem. Ind.*, 1909, v. 28, p. 744.

Gane and Webster think that the U. S. P. ash limit of 0.05 per cent in tartaric acid is rather stringent, especially in view of the absence of sulphates provided for by another test.—*Drug Topics*, New York, 1909, v. 24, p. 326.

Berry, G. F., in an English patent specification describes a method for the manufacture of tartaric acid from the raw material (potassium bitartrate).—*J. Soc. Chem. Ind.*, 1909, v. 28, p. 490.

Carles, P., discusses the estimation of total tartaric acid in tartaric acid containing products.—Bull. Soc. chim., Par., 1909, v. 5, pp. 567–568. See also Ann. d. chim. analyt., Par., 1909, v. 14, pp. 183–185, and J. d. pharm. et d. chim., Par., 1909, v. 29, p. 381.

H. S. discusses the chemistry involved in the red color given by tartaric acid when heated with a solution of resorcin in sulphuric acid.—Schweiz. Wehnschr. f. Chem. u. Pharm, Zürich, 1909, v. 47, pp. 616–617.

Jørgensen, Gunner, outlines a method for determining tartaric acid in the presence of succinic, malic, and citric acids.—Ztschr. f. Unters. Nahr. u. Genussm., 1909, v. 17, p. 397.

Scovell, M. A., reports tartaric acid containing sulphuric acid, calcium, and heavy metals.—Rep. Kentucky Agric. Exper. Sta. (1908–9), 1910, p. 6.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 55) report that in over 100 consignments of tartaric acid examined the limit of 1 part arsenic per million was reached by only 10 samples. The lead ranged from 5 to 25 parts per million.

Southall Bros. & Barclay (Rep., 1908–9, Birmingham, 1910, p. 31), report that tartaric acid does not appear to be subject to the excessive metallic contamination observed at one time. Sixteen parts per million of arsenic are the maxima noted during the past two years.

The examination of drug samples in 1907 showed that of 415 samples of tartaric acid examined, 51 were found to be adulterated or not up to standard.—Pharm. J., Lond., 1909, v. 28 (82), p. 182.

The Belgian inspectors of pharmacies report that the reaction for the detection of lead, made under the conditions prescribed by the pharmacopœia, in tartaric acid sometimes exceeds the limits permitted.—J. d. pharm. d'Anvers, 1909, v. 65, p. 584.

Posey, H. G., thinks that saccharated tartaric acid should be dropped and that instructions covering the manufacture could be incorporated under the heading "Pulveres effervescentes."—Proc. Am. Pharm. Ass., 1909, v. 57, p. 983.

Members of the Baltimore branch point out that acidum tartaricum saccharatum N. F., on account of the presence of sugar, does not keep.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 55.

#### ACIDUM TRICHLORACETICUM.

Gane and Webster assert that trichloroacetic acid is not of sufficient importance to warrant its retention in the U. S. P.—Drug Topics, New York, 1909, v. 24, p. 326.

McWalter, J. C., asserts that acidum trichloroaceticum is a powerful disinfectant, useful, when diluted, in erysipelas or gonorrhœa,

and that it deserves a place in the Ph. Brit.—Chem. & Drug., Lond., 1909, v. 74, p. 20.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, p. 93) quotes W. H. Fitzgerald who recommends trichloroacetic acid as a specific for various diseases of the mouth and throat, and for affections of the cervical glands.

#### ACONITINA.

Capps, Pratt, McCrae, and Halsey, recommend the deletion of aconitina from the U. S. P., on account of its strength and variability as well as the danger of poisoning.—J. Am. M. Ass., 1909, v. 53, p. 792.

The committee of reference in pharmacy assert that the formula, characters, and tests for aconitina require revision.—Chem. & Drug., Lond., 1909, v. 74, p. 289.

Merck, E. (Darmstadt) says that a melting point of 194° for aconitine (Ph. Fr. V) is only attained by very rapid heating; when heated more slowly the substance melts at a much lower temperature (in the neighborhood of 185°).—Bull. sc. pharmacol. Par., 1909, v. 16, p. 544.

Dohme and Engelhardt report a sample of aconitine which melted at 182° C., while the potent official aconitine should melt at 195° C.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 713.

Schmidt, Ernst, reports a crystallographic study of aconitine and its derivatives. Also discusses pseudoaconitine obtained from *Aconitum ferox*, and Japaconitine obtained from *Aconitum fischeri* (Var.).—Arch. d. Pharm., 1909, v. 247, pp. 233–241.

Gane and Webster report that there is still considerable variation in the potency of aconitines of commerce, owing to the difficulty in obtaining aconitine in a pure state. They suggest the inclusion of the crystalline hydrochloride or hydrobromide in place of the alkaloid, these being more soluble, more easily purified and, therefore, more uniform in composition. This alkaloid is rapidly absorbed through the skin, and great care should be exercised in handling its preparations.—Drug Topics, New York, 1909, v. 24, p. 340.

Makoshi, K., presents a contribution on the aconitine of Japanese aconite, and describes jesaconitine and japaconitine, derived, respectively, from the Kusauzu tubers from Hokkaido (Jeso) and Kusauzu tubers from Hondo.—Ztschr. d. allg. österr. Apoth.-Ver., Wien, 1909, v. 47, pp. 229–230. See also Arch. d. Pharm., 1909, v. 247, pp. 243–270.

Schwantke, Arthur, discusses the crystalline form of japaconitine.—*Ibid.*, 1909, v. 247, pp. 242–243.

Caldwell, Paul, points out that aconitine has two properties that tend to destroy its usefulness, namely, great power and variable strength. Since the drug, the fluid extract, the tincture, and assays

for each are now official, this dangerous alkaloid may well be dropped.—Bull. Pharm., 1909, v. 23, p. 115.

Gray, Robert, gives aconitine for the fever element, first, last, and all the time, regardless of pulse or other contraindications.—J. Therap. & Diet., 1909-10, v. 4, p. 91.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 93-95) reviews some of the recent literature relating to the use of aconitine and points out that in regard to the dosage it is advisable to use only the crystalline variety in single doses of from 0.2 to 0.3 mg. ( $\frac{1}{160}$  to  $\frac{1}{100}$  grain). It should be remembered, however, that up to the present there are no reliable data on which to decide the dosage.

#### ACONITUM.

Minton, P. I., points out that one of the popular synonyms for both aconite and arnica is wolfsbane. When people want aconite they do not desire arnica, and when they want arnica they certainly do not care for aconite. He suggests that the continuation of popular synonyms for active drugs presents an opening for dangerous mistakes.—Bull. Pharm., 1909, v. 23, p. 344.

Schneider, Albert, points out that aconite appears to be scarce, and much that is now on the market is adulterated. Several species are substituted for the true medicinal aconite (*Aconitum napellus*). The plant is quite common in California as an ornamental flowering plant. It is extensively cultivated in England and other European countries where it has become naturalized.—Pacific Pharmacist, 1909-10, v. 3, p. 192.

The definition for aconite root, proposed to the Second International Congress for the Repression of Adulteration (Paris, 1909), is the tuberous roots of *Aconitum napellus* L. (Ranunculaceæ), collected during the flowering season; their characters are also given.—Bull. sc. pharmacol. Par., 1909, v. 16, p. 549.

Schamelhout, A., states that the Congress decided that dried aconite root should assay at least 0.5 per cent total alkaloids. He notes that the powdered aconite of the Ph. Belg. III, dried at 100° should contain 0.8 per cent total alkaloids.—Bull. Soc. roy. d. pharm. Brux., 1909, v. 53, p. 336.

Umney, J. C., points out that it is suggested that the standard for aconite shall be 0.5 per cent of the total alkaloids determined by the process of the French Codex, which depends on the precipitation of the alkaloid by silicotungstic acid. The standard of the U. S. P. is 0.5 per cent of aconitine, a standard which is a very fair one and likely to be acceptable for the new Ph. Brit. The Brussels international agreement suggests that tincture of aconite should contain 0.05 per cent of total alkaloids, although it does not require the actual standardization of the root.—Chem. & Drug., 1909, v. 75, p. 579.

Rusby, H. H., is not convinced that the requirement to collect aconite in the autumn rests on any experimental data. Special collection of roots at different seasons, all other conditions being equal, should be made and subjected to assay. The distinction between the genuine and the Japanese species, in powder, should be determined.—*Midl. Drug.*, 1909, v. 43, p. 688. See also *Pharm. Era*, 1909, v. 42, p. 633.

The committee of reference in pharmacy asserts that experiments specially made have shown that German aconite root is richer in alkaloid than English, and that it is not desirable that the drug should be restricted to English root. They present a modified monograph.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 289.

MacEwan and Forrester, in commenting on variations in the activity of certain toxic drugs, discuss the origin, nature, and use of aconite, and the need for international inquiry for the purpose of securing an agreement among individuals in the same or different countries as regards a recognized process of assay.—*Proc. VIIth Internat. Congress App. Chem.*, Sec. VIIb, Pharmacy, 1909, London, 1910, pp. 83–84. See also *Chem. & Drug.*, Lond., 1909, v. 74, p. 878.

Makoshi, K., describes and figures Japanese aconite.—*Arch. d. Pharm.*, 1909, v. 247, pp. 251–254.

Mann, Ernest W., reports experiments to determine the relative alkaloidal value of stem and bud-crowned roots of aconite.—*Brit. & Col. Drug.*, 1909, v. 55, p. 217.

Gane and Webster assert that no assay process so far devised for aconite is of any value in determining its medicinal activity, which appears to depend wholly on the aconitine content. The U. S. P. assay process does not determine the aconitine only, and various authorities have advised the substitution of the Squibb physiological test for determining the value of the drug. This does not appeal to them, as so much depends on the personal equation in making the test. They think it would be far better to drop the crude drug altogether and urge the use in place thereof of the alkaloid or one of its salts.—*Drug Topics*, New York, 1909, v. 24, p. 340.

Cæsar & Loretz (*Geschäfts-Ber.* 1909, p. 110) recommend the Keller method for the assay of aconite. They also point out that the Ph. Germ. and U. S. P. require approximately 0.5 per cent of alkaloids, and that the Ph. Belg. and Ph. Helv. require 0.8 per cent. The latter pharmacopœia also limits the permissible ash content of aconite to 6.5 per cent.

Taylor, Frank O., discusses the quantitative valuation of aconite and its preparations, and reviews several methods of assaying suggested from time to time.—*J. Ind. Eng. Chem.*, 1909, v. 1, pp. 549–567.

Bernegau, L. Henry, outlines a modification of the assay for aconite root and preparations made therefrom. He finds it preferable to use for extracting the alkaloid an ether-chloroform mixture to which has been added about 15 cc. of saturated sodium bicarbonate solution. He also finds iodeosin to be of no value as an indicator and uses cochineal instead.—*Am. J. Pharm., Phila.*, 1909, v. 81, p. 122. See also *Bull. Am. Pharm. Ass.*, 1909, v. 4, pp. 79–80.

Havenhill, L. D., thinks the present aconite assay would be improved by using aconite in No. 80 powder and substituting alcohol for the 7:3 hydroalcoholic menstruum at present used. Though even here he prefers the aliquot part (Keller) method.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 802.

Lyons, A. B., discusses the several available methods for the assay of aconite, and calls attention to the modifications adopted in several of the foreign pharmacopœias.—*Am. Druggist, N. Y.*, 1909, v. 55, p. 369. See also *Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 802, and *Proc. VIIth Interat. Congress App. Chem., Sec. VIIIb, Pharmacy*, 1909, London, 1910, p. 109.

Dohme and Englehardt, in reviewing the assay methods of the U. S. P., point out that in the assay of aconite the filtration of the acid liquid is very tedious, even in the greater dilution as given in the corrections. Keller's method gives good results. *Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 879.

Kottenhoff, G., thinks that the assay process indicated by the Belgian, German, and Japanese Pharmacopœias in the article on powdered aconite should be abandoned, as it is not practical and requires a number of manipulations. He prefers the process of the Ph. Helv. The process of the Ph. Fr. V, for the estimation of aconite as silicotungstate, he considers to be very good.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 133.

Dohme and Engelhardt report that all samples of aconite root examined came fully up to the required strength.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 713.

Vanderkleed, C. E., reports 12 assays of aconite root, lowest 0.240 per cent, highest 0.920; 6 below and 6 above standard.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 129.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 6) report 5 samples of aconite root examined, yielding by the process of Panchaud, ether-chloroform soluble alkaloid 1.06 to 1.26 per cent; aconitine, by U. S. P. process, 0.17 to 0.64 per cent. The figures obtained by the former method in previous years ranged from 1.05 to 1.78 per cent, the latter being obtained from a consignment of English root.

Southall Bros. & Barclay (*Rep.* 1908–9, Birmingham, 1910, pp. 5–6) report a comprehensive study of the proportions of aconitine



present in stem and bud-crowned roots. The results, while not absolutely conclusive, indicate that the restriction of the British Pharmacopœia and the International Protocol to bud-crowned roots is fully justified. They also report assays of 6 commercial samples, the aconitine content of which varied from 0.28 to 0.57 per cent.

The Belgian inspectors or pharmacies call attention to the fact that aconite tubercles are mixed with hollow tubercles, dark brown and exhausted by vegetation. The assayed powder which is alone officinal is often below standard.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 548.

Caldwell, Paul, thinks that fluid extract of aconite can be dropped from the U. S. P. for the reason that the tincture is used instead.—*Bull. Pharm.*, 1909, v. 23, p. 115.

Dunn, John A., thinks the committee of revision took a step in the right direction when it reduced the alcoholic strength of the menstruum for fluid extract of aconite root from 91 per cent alcohol to 70 per cent. He thinks it would have been still better had they gone further and made it 41 per cent alcohol, as this latter strength exhausts the drug completely and gives a fluid extract that fully represents the drug and has the added advantage that it mixes with water and other simple diluents.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 947.

Dohme, A. R. L., as the result of a comprehensive investigation states that, in fluid extract of aconite, decomposition of the alkaloids seems to take place after one-half year's standing.—*Proc. Maryland Pharm. Ass.*, 1909, p. 103.

Dunlap, Renick W., reports one sample of fluid extract of aconite root not passed.—*Rep. Ohio Dairy & Food Com.*, 1909, p. 58.

Cook, E. Fullerton, reports that the process for tincture of aconite is satisfactory. A slight precipitate, which is readily mixed with the liquid on shaking, formed in a preparation that stood about a year.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1000.

Dunlap, Renick W., reports two samples of tincture of aconite root examined; one not passed.—*Rep. Ohio Dairy & Food Com.*, 1909, p. 59.

The Belgian inspectors of pharmacies report tincture of aconite often poorly assayed, showing only 0.025 to 0.035 per cent alkaloid. This verification, made on the place by the rapid process with Mayer's reagent, was afterwards controlled.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 589. See also *Bull. Soc. roy. d. pharm. Brux.*, 1909, v. 53, p. 262.

Diehl, C. L., reports from the committee on N. F. recommending the deletion of Fleming's tincture of aconite.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1090.

Buttin, Louis, regrets the omission from the Ph. Helv. IV of the "Alcoolature d'Aconit," and points out that this preparation has been long and widely used in Switzerland.—Schweiz. Wchnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, p. 661.

Felter, H. W., states that minute doses of aconite allay irritation of the bowels and stomach when fever is present. The rapid, weak pulse is here, as elsewhere, a good indication. Only the minute dose should be used, and usually but for a short period.—Eclectic M. J., Cincin., 1909, v. 69, p. 451.

Spencer, George W., asserts that aconite applied directly to the heart lessens the number and force of its beats, and finally arrests its action in diastole. This primary action furnishes a basis upon which to work in proving out the extensive uses to which this drug is applied.—J. Am. Inst. Homœop., 1909, v. 1, p. 515.

Bloyer, W. E., thinks that the homœopaths are pretty nearly right in their use of aconite when they suggest its use in troubles of sudden onset and of short duration with symptoms of great intensity. This remedy is to be avoided in the treatment of the chronically weak, the old, and those that have any species of blood poisoning.—Eclectic Rev., 1909, v. 12, pp. 326-328.

#### ADEPS.

Capps, Pratt, McCrae, and Halsey, recommend the deletion of adeps, and state that its use has almost entirely ceased. It has been replaced by more suitable substances.—J. Am. M. Ass., 1909, v. 53, p. 792.

Woods, Charles D., defines lard as the rendered fresh fat from hogs in good health at the time of slaughter—clean, free from rancidity, and contains, necessarily incorporated in the process of rendering, not more than 1 per cent of substances other than fatty acids and fat.—Rep. Maine Agric. Exper. Sta. (1909), 1910, App. p. 109.

The committee of reference in pharmacy asserts that a number of experiments have been made with the object of revising the monograph for adeps.—Chem. & Drug. Lond., 1909, v. 74, p. 289.

Shrewsbury, Herbert S., outlines a rapid sorting test for the detection of paraffin wax in lard, and asserts that as little as 2 per cent of paraffin wax may be detected by this method.—Analyst, London, 1909, v. 34, p. 348.

Olig and Brust report a systematic study of Bellier's reaction for the presence of plant oils in lard and conclude that this test is a satisfactory one for all vegetable oils, though they deem it possible that oils may be so treated that they will not react to this test.—Ztschr. f. Unters. Nahr. u. Genussm., 1909, v. 17, pp. 561-584.

Paal and Roth report observations on the catalytic action of the colloidal metals of the platinum group on lard.—Ber. d. deutsch. chem. Gesellsch., Berl., 1909, v. 42, p. 1552.

*Table showing reported adulteration of lard.*

| Reporter.                  | Samples examined. | Samples rejected. | Reference.  |
|----------------------------|-------------------|-------------------|---|
| Street, John Phillips..... | 104               | 7                 | Rep. Connecticut Agric. Exper. Sta. (1909), 1910, p. 202. |
| Lythgoe, Hermann C.....    | 17                | 1                 | Rep. Massachusetts Bd. Health (1909), 1910, p. 469.       |
| Dunlap, Renick W.....      | 24                | 9                 | Rep. Ohio Dairy & Food Com., 1909, p. 61.                 |
| Clesier.....               | 5                 | 2                 | Suedd. Apoth. Ztg., 1909, v. 49, p. 51.                   |
| Evans Sons Lescher & Webb. | 1                 | 1                 | Analytical Notes, 1909, p. 39.                            |

The Belgian inspectors of pharmacies state that this fat is more and more falling into disuse. What is found is generally the American product—rancid, containing “lard” and often saturated with water.—J. d. pharm. d’Anvers, 1909, v. 65, p. 548.

Rieter calls attention to the article by Arragon on Dutch lard which, he asserts, is prepared by cold compression, consists chiefly of lard stearin and has properties quite distinct from the official lard.—Schweiz. Wchnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, pp. 98–99.

Pinchbeck, Gerald, asserts that his experiments have convinced him that bacteria play an important part in the rancidity of lard and other fats.—Pharm. J., Lond., 1909, v. 28 (82), p. 380.

Garnett, Henry, discusses the rancidification of lard and expresses the belief that the whole subject is one deserving of more careful study.—*Ibid.*, p. 347.

Mittelbach, William, thinks that lard should be kept in well-closed tin vessels. The ointment jar that is generally used by the pharmacist is not a good container. Lard manufacturers and butchers (practical men at the business) never place lard on the market in earthenware or glass containers. They found by practical experience that tin vessels are best.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 815.

Goetting, E. C., thinks that lard and benzoinated lard could readily be dispensed with in the formulas of many of the official ointments.—D.-A. Apoth. Ztg., N. Y., 1909–10, v. 30, p. 30.

#### ADEPS BENZOINATUS.

Gane and Webster think that Siam benzoin should be directed to be used in preparing benzoinated lard, so as to secure the fine aroma insisted upon by the trade and which depends on the presence of a small amount of vanillin in the Siam variety. The alternative might

be allowed of adding a little vanillin when the Sumatra variety is employed.—*Drug Topics*, New York, 1909, v. 24, p. 340.

Dunn, John A., asserts that in making benzoinated lard he obtains better results by dissolving the benzoin in just sufficient alcohol and pouring this solution into the melted lard, then completing the preparation as directed in the U. S. P.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 948.

Mittelbach, William, is inclined to believe that the old way of suspending the benzoin inclosed in a little cloth sack in the melted lard is the better and cleaner way of benzoating it.—*Ibid.*, p. 815.

Pinchbeck, G., points out that objection has been made to benzoinated lard because of the possible irritation set up by the benzoic acid present, and suggests that styrax be used in place of benzoin.—*Pharm. J., Lond.*, 1909, v. 28 (82), p. 84.

Dott, D. B., agrees with Pinchbeck in regard to the superiority of styrolated lard. He points out that the present method of benzoation is clumsy and inefficient, as it does not always succeed in preventing rancidity and sometimes the odor is scarcely perceptible.—*Ibid.*, p. 214.

An editorial (*ibid.*, p. 250) points out that the committee of reference in pharmacy recommends a modification in the Ph. Brit. method of making benzoinated lard; Sumatra benzoin, in coarse powder, is to be used, and the process will only occupy one hour instead of two as formerly, and that at a lower temperature.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 289.

Eberle, H. T., asserts that in making benzoinated lard it is not enough to strain the plain or benzoinated lard and so free it of the coarser impurities, but it should also be filtered through paper. He further suggests dehydrating commercial lard by means of dried sodium sulphate.—*Southern Pharm. J.*, 1908-9, v. 1, p. 27.

Welborn, G. (*J. d. méd. intern.*, 1909), presents a method for preventing rancidity in lard by the addition of a small amount of pimenta oil.—*Ann. d. pharm.*, Louvain, 1909, v. 15, p. 453.

Van Neron, G., likewise presents a formula for the prevention of rancidity in lard and its preservation almost indefinitely, using powdered benzoin and potassium alum.—*Ibid.*, p. 485.

#### ADEPS LANÆ.

Gane and Webster think that the synonyms "Anhydrous lanolin" and "Lanolin" should be introduced for wool-fat and anhydrous wool-fat, as these products are invariably prescribed under these titles and the terms are open to general use since the expiration of the patent.—*Drug Topics*, New York, 1909, v. 24, p. 340.

Beringer, George M., points out that adeps lanæ has never been accepted and causes confusion since the hydrous kind is nearly always

desired when ordered by prescription. In the French, Swiss, and Swedish Pharmacopœias, lanolinum is used to describe the *adeps lanæ hydrosus* and this is recommended as preferable.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 795.

An editorial (*Pharm. J.*, Lond., 1909, v. 28 (82), p. 250) points out that the committee of reference in pharmacy recommends the use of anhydrous lanolin for *adeps lanæ* "if the name 'lanolin' is free." The editorial continues that the minds of the committee may rest easy in the assurance that the proposed name is entirely at their disposal and has been for some time past.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 289.

There was proposed to the Second International Congress for the Repression of Adulteration (Paris, 1909), as a definition for wool-fat: Purified and dehydrated fat of the wool of sheep. The characters are also given.—*Bull. sc. pharmacol.*, Par., 1909, v. 16, p. 358.

Schamelhout, A., states that, according to this Congress, the ash limit should be 0.2 per cent; the *Ph. Belg. III* tolerates only 0.05 per cent.—*Bull. Soc. roy. d. pharm.*, Brux., 1909, v. 53, p. 337.

Umney, J. C., thinks 2 per cent of ash a very unnecessarily high figure even for a commercial wool-fat. The limits of the *U. S. P.* and the *Ph. Brit.* are 0.3 per cent, that of the *Ph. Germ.* 0.5 per cent, and the highest of these figures he has not found to be exceeded in any commercial products.—*Chem. & Drug.*, 1909, v. 75, p. 580.

Schamelhout, A., says that the *Ph. Belg. III* tolerates a much higher degree of acidity—0.50 cc. in place of 0.10. On the contrary, it permits only 0.05 per cent of ash. In Belgium and in this country alone lanolin is the synonym for wool-fat. He hopes that this regrettable synonymy will disappear entirely.—*Bull. Soc. roy. d. pharm.*, Brux., 1909, v. 53, p. 176.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 38) report a summary of 20 series of tests on anhydrous lanolin: Loss at 100° C., 0.1 to 0.3 per cent; saponification value, 85 to 97; iodine value, 19.34 to 28 per cent.

Mittelbach, William, points out that the property of wool-fat of being miscible with a large quantity of water is information enough for the physician without making the hydrous official.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 815.

#### ADEPS LANÆ HYDROSUS.

Schamelhout, A., states that in the *Ph. Fr. V*, lanoleine is the synonym of lanolin and designates hydrated (25 per cent) wool-fat; in Belgium the word lanolin designates the anhydrous wool-fat.—*Bull. Soc. roy. d. pharm.*, Brux., 1909, v. 53, p. 56.

Mittelbach, William, recommends that hydrous wool-fat, if retained, be made a definite mixture containing 30 per cent of water.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 815.

### ETHER.

Umney, J. C., points out that in the proposed international standard for ether a density of 0.724 would allow more than traces of water and alcohol. The Ph. Brit. limits for pure ether are 0.720 to 0.722, while the Ph. Germ. gives 0.720, and the U. S. P. 0.716 to 0.717 at 25° C.—Chem. & Drug., 1909, v. 75, p. 581.

The committee of reference in pharmacy asserts that the description of the production of ether should read "may be prepared," so as to permit the use of ether prepared from industrial alcohol. The product should boil at not lower than 34° C. (to exclude methyl oxide). Under the name of "æther anæstheticus" an ether for anæsthetic purposes with more stringent tests should be introduced. They assert that experiments show that the solid potash test of the German Pharmacopœia for æther pro narcosi is too stringent. It should be replaced by "If caustic potash in small fragments be kept in contact with the ether in a well-stoppered bottle protected from the light, no yellow coloration should be developed within one hour."—*Ibid.*, v. 74, p. 289.

Garbarini, Guido, presents some observations on the purification of ether.—Proc. VIIth Internat. Congress App. Chem., Sec. VIIIb, Pharmacy, 1909, London, 1910, pp. 128–132.

Wade and Finnemore report a study of the influence of water and alcohol on the boiling point of ethyl ether. They conclude that ether does not form a ternary mixture with alcohol and water.—J. Chem. Soc., Lond., 1909, v. 95, pp. 1842–1854.

Osaka, Yukichi, reports some observations on the solubility of ethyl ether in water, and presents a table showing the solubility at from 0° to 30° C.—Brit. & Col. Drug., 1909, v. 55, p. 539. See also Proc. VIIth Internat. Congress App. Chem., Sec. IVa 1, Organic Chemistry, 1909, London, 1910, pp. 308–310.

Fühner, H., discusses the reciprocal solubility influence in aqueous solutions of ether and chloroform.—Ber. d. deutsch. chem. Gesellsch., Berl., 1909, v. 42, pp. 887–889.

v. Siebenrock, E., reports observations on the drying of moist ether.—Monatsh. f. Chem., Wien, 1909, v. 30, pp. 759–766.

Gane and Webster assert that a minimum boiling point should be specified so as to eliminate possible admixture with methyl oxide. The presence of small amounts of water and about 4 per cent of alcohol is a serious objection in assay work and often responsible for great discrepancy in the results of different analysts. Where ether is

directed to be used for determining ether solubility "anhydrous ether" should be specified. A test should also be introduced to insure absence of hydrogen peroxide. An "ether for anæsthesia" should also be included with more stringent tests, as in the German Pharmacopœia.—*Drug Topics*, New York, 1909, v. 24, p. 340.

Pearson, W. A., found one sample of ether containing 5 per cent alcohol, another an appreciable amount of aldehyde.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 178.

The Belgian inspectors of pharmacies report that æther pro narcosi is still lacking in certain pharmacies. As to the ordinary ether, it is far from responding always to the requirements of the Pharmacopœia. Many samples contain an irritant oily principle. There is general neglect to protect it from the light.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 584.

An unsigned article in discussing the storing and preservation of inflammable liquids points out that ether is dangerous and great precaution should be observed in handling it.—*N. A. R. D. Notes*, v. 8, 1909, p. 481.

Gane and Webster discuss the determination of alcohol, ether, and chloroform in pharmaceutical preparations.—*Merck's Rep.*, 1909, v. 18, p. 196.

Derouaux, Jean, reports results of researches on the physiological action of ether and presents a bibliography on the physiological action of ether and of alcohol.—*Arch. internat. d. pharmacod. et d. therap.*, 1909, v. 19, pp. 63–95.

For symposium on anæsthesia, effects of ether and chloroform, and the administration of anæsthetics, see proceedings of American Gynæcological Society.—*J. Am. M. Ass.*, 1909, v. 52, p. 1614.

Webster, J. Clarence, says that the routine administration of ether, as practiced in America, is to be condemned, because of unpleasant or dangerous sequelæ.—*Ibid.*, p. 1615. See also *Surg. Gynæcol. & Obst.*, May, 1909.

Lathrop, Walter, reports a death under ether anæsthesia.—*New York M. J.*, 1909, v. 90, p. 1288.

Page, H. M., describes a method of giving ether by means of nasal tubes, with a figure of the apparatus.—*Lancet*, 1909, v. 177, p. 364.

Rohrig, J. G., describes and figures a new device for dropping ether and chloroform.—*J. Am. M. Ass.*, 1909, v. 53, p. 1817.

Miller, Albert H., describes an apparatus to be used in the production of ether anæsthesia for adenoid and tonsil operations.—*Boston M. & S. J.*, 1909, v. 161, p. 87. See also *J. Am. M. Ass.*, 1909, v. 53, pp. 1353–1355. (For discussion see p. 1381.)

Hewitt and Blumfield report upon the routine use by the open method of a mixture of chloroform and ether.—*Lancet*, 1909, v. 177, pp. 10–12. See also pp. 107, 187, 256, and 414.

Byington, J. F., describes and illustrates an apparatus for administering nitrous oxide and oxygen, or ether vapor and air in any definite mixture, the exact percentages of the two gases being under the immediate control of the anæsthetist.—*J. Am. M. Ass.*, 1909, v. 52, p. 697.

Todd, Joseph F., makes a plea for unadulterated ether anæsthesia and points out that during the past 15 years a number of new remedies have been discussed, used, found wanting, and discarded.—*Merck's Arch.*, 1909, v. 11, pp. 309–311.

McMechan, F. Hoeffler, describes and figures a new device for rectal anæsthesia.—*J. Am. M. Ass.*, 1909, v. 53, p. 1559.

Burkhardt, Ludwig, reports observations on the production of narcosis by means of intravenous injection of ether.—*Arch. f. exper. Path. u. Pharmacol.*, Leipzig, 1909, v. 61, pp. 323–342.

Barton, Wilfred M., considers the hypodermic injection of ether in shock and collapse a harmful delusion, as after absorption it acts as a cardiac depressant. He quotes Elfstrand as authority for the statement that ether injected hypodermically has been found without effect on the heart or blood pressure.—*J. Am. M. Ass.*, 1909, v. 52, p. 1559.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 95–97) in a review of recent literature relating to the use of ether, quotes Souligoux who has obtained very good results by the external application of ether in discharging abscesses.

Additional references on the pharmacology and uses of ether will be found in *Index Medicus* and *J. Am. M. Ass.*

### **ÆTHER ACETICUS.**

Habermann and Brezina present a contribution to our knowledge of the production and composition of acetic ether.—*J. f. prakt. Chem.*, Leipzig, 1909, v. 80, pp. 349–354.

The committee of reference in pharmacy asserts that the description of the method of manufacture for acetic ether should be abbreviated; the liquid should be kept in small well-stoppered bottles in a cool dark place to avoid decomposition. An assay method is outlined.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 289.

Gane and Webster assert that there is no need for including acetic ether in the U. S. P., as about its only use at present is the manufacture of artificial essences and flavors.—*Drug Topics*, New York, 1909, v. 24, p. 340.

Poulenc Frères note that the Codex requires for acetic acid a density of 0.920; they think it should read 0.902.—*Bull. sc. pharmacol. Par.*, 1909, v. 16, p. 407.

Merck, E. (Darmstadt), calls attention to the above discrepancy as probably a typographic error.—*Ibid.*, p. 549.



Pearson, W. A., found one sample of acetic ether containing a trace of readily carbonizable, organic impurities.—Proc. Pennsylvania Pharm. Ass., 1909, p. 178.

The Belgian inspectors of pharmacies report that acetic ether is frequently acid; they continue to find certain samples containing a strong proportion of free acid and of uncombined alcohol.—J. d. pharm. d'Anvers, 1909, v. 65, p. 584. See also Bull. Soc. roy. d. pharm. Brux., 1909, v. 53, p. 233.

#### **ÆTHYLIS CARBAMAS.**

Gane and Webster assert that ethyl carbamate was never sufficiently used to have warranted its inclusion in the U. S. P. To-day it has almost entirely gone out of use.—Drug Topics, New York, 1909, v. 24, p. 340.

Düsterbehn points out that the Ph. Fr. V requires that urethane have a boiling point of 184° C.—Apoth. Ztg., Berl., 1909, v. 24, p. 240.

Lindemann, F., reports experiments on the use of morphine and ethyl carbamate as a narcotic.—Ztschr. f. exper. Path. u. Therap., 1909-10, v. 7, pp. 725-742.

See also article on the influence exerted by scopolamine by E. Hauckold.—*Ibid.*, pp. 743-762.

#### **ÆTHYLIS CHLORIDUM.**

Prinz, Hermann, recommends that mixtures of ethyl chloride, methyl chloride, and ethyl bromide, freely discussed in current dental literature, be not admitted to the U. S. P., as they offer no material advantage over pure ethyl chloride.—J. Am. M. Ass., 1909, v. 53, p. 796.

An unsigned article points out that ethyl chloride requires special care in protection from fire, and should be kept only in small containers, the best being hermetically sealed glass tubes.—N. A. R. D. Notes, 1909, v. 8, p. 481.

Seifert, Otto, reports that according to Seitz one death occurs in each 6,000 cases of ethyl chloride narcoses. The contraindications for the use of ethyl chloride are pericarditis, alcoholism, hysterias, and various diseases of the heart.—Apoth. Ztg., Berl., 1909, v. 24, p. 26.

Sill, E. Mather, discusses the use of ethyl chloride as a general anæsthetic for operations in the throat, especially as applied to children.—Med. Rec., N. Y., 1909, v. 76, pp. 688-690.

A review calls attention to several articles recently published on the use of ethyl chloride in general anæsthesia, and points out that the conclusion reached by one writer is that ethyl chloride has sufficient advantages and points in its favor to warrant its administration in the majority of cases in which an anæsthetic is employed.—Therap. Gaz., 1909, v. 33, pp. 334-335.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 193-194) quotes Büdinger (Münch. med. Wchnschr., 1909, p. 1896), who uses ethyl chloride in the form of a spray in the treatment of warts.

Additional references on the uses of ethyl chloride will be found in Index Medicus and J. Am. M. Ass.

### ALCOHOL.

Plücker, W., discusses the production of pure ethyl alcohol, the nature and origin of the contaminating substances of commercial alcohol, and reviews the literature relating to the production of chemically pure ethyl alcohol.—Ztschr. f. Unters. Nahr. u. Genussm., 1909, v. 17, pp. 454-458.

Koerner, Th., in a discussion on the production of alcohol from cellulose, describes how wood and wood products may be employed for the production of ethyl alcohol.—Sc. Am. Suppl., 1909, v. 67, pp. 238-239.

Toggenburg, F., discusses the influence of air on the formation of volatile products in the course of alcoholic fermentation.—Schweiz. Wchnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, pp. 366-367.

Düsterbehn points out that, according to the Ph. Fr. V, the specific gravity of absolute alcohol at 15° C. varies between 0.79432 and 0.79683, corresponding to an alcohol content of 99.5 to 100 per cent. The Ph. Germ. IV requirements permit a variation of 99.4 to 99.7 per cent absolute alcohol.—Apoth. Ztg., Berl., 1909, v. 24, p. 228.

Wilbert, M. I., reviews the history of alcohol and alcoholic beverages in the U. S. P., and presents a table showing the evolution of alcohol and alcoholic beverages as official substances.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 788-792.

An unsigned article discusses the production of alcohol in Germany, and points out that practically all materials containing carbohydrates, such as potatoes, fruits, including cherries, plums, and other stone fruits, kernel fruits, berries, grapes, currants, raisins, wine, wine lees, fruit and wine cake, rye, barley, wheat, and corn are used, but that the greater portion is manufactured from potatoes.—Chem. Trade J., 1909, v. 45, pp. 124-125.

Girard and Chauvin present the results of comparative analysis of alcohol and alcoholic liquors, distilled in air and in a vacuum.—Monit. Scientif., 1909, v. 70, pp. 73-89.

A number of articles on fermentation, distillation, and production of spirituous liquors are presented.—Proc. VIIth Internat. Congress App. Chem., Sec. VIb, Fermentation, 1909, London, 1910.

The Catalogue of Definitions adopted by the International Congress for the Suppression of Adulteration, Geneva (1908), defines

ordinary alcohol as the product of the distillation with rectification of a fermented liquid, whatever it may be. Alcohol used as a beverage should always be sold with an indication of the source from which it is derived.—Bull. sc. pharmacol. Par., 1909, v. 16, p. 232.

Schamelhout, A., notes that in France alcohol should contain 95 volumes of absolute alcohol; in Belgium at least 94.09 per cent.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 5.

Schimmel & Co. (Semi-Annual Report, April, 1909, p. 100), in discussing the Ph. Svec. IX requirements for alcohols, note that the following strengths are prescribed: spiritus concentratus, 90.3 to 91 per cent; spiritus dilutus, 69.6 to 70.5 per cent; spiritus tenuis, 48.4 to 50.6 per cent.

A committee of the Syndicat général de la Droguerie française asks that ethyl alcohol be allowed to contain traces of aldehyde.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 288.

Talbert, P. S., in answer to a query regarding the difference between alcohol and so-called commercial alcohol, points out that the material that is usually labeled "commercial" consists of the heads and tails, or the beginning and end, of the ordinary run of a still.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 190.

Wiley, H. W., points out that "commercial" alcohol does not correspond to all of the tests of the Pharmacopœia, and asserts that the pharmacist should not allow himself to be imposed upon by using it in official preparations. He claims that for but a slight increase in price it is possible to secure a spirit, or pure alcohol, that will comply with all of the requirements of the U. S. P.—*Ibid.*, p. 190.

Gane and Webster assert that the wording of the test for methyl alcohol would seem to imply that methyl alcohol to the amount of 2 per cent is permissible in ethyl alcohol. Inasmuch as methyl alcohol is not usually present in alcohol prepared from fermenting substances, this wording is highly reprehensible.—Drug Topics, New York, 1909, v. 24, p. 340.

The Philadelphia branch of the American Pharmaceutical Association reports a resolution advising the adoption of a uniform national alcohol table.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 82.

Lyons, A. B., points out that the U. S. P. needs a new alcohol table, modified to conform to that of the Bureau of Standards, unless it shall appear that in some details this admits of modification.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 797. See also pp. 907-918.

Tolman, L. M., for the committee on the standardization of alcohol tables, recommends the adoption of the alcohol tables promulgated by the Bureau of Standards, and printed in Circular 52, Bureau of Chemistry, U. S. Department of Agriculture.—Proc. Ass. Off. Agric. Chem., 1909, 26th Ann. Conv., pp. 167-168 (Bull. Bur. Chem. U. S. Dept. Agric., 1910, No. 132).

Wheeler, J. C., points out that the pharmacists by compounding the wines or spirits into medicines bring themselves within the exemption provided by section 8246, R. S., but that, to secure the benefit of this exemption, the spirits or wines must be compounded with drugs sufficient in character and amount to have a therapeutic effect other than would be obtained by the use of spirits or wine uncompounded, and sufficient to render the compound unsuitable for use as a beverage.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 189.

Dott, D. B., discusses the use of alcohol in pharmacy, and points out that this article is used as a solvent, as a preservative, and in some instances because of its volatility.—Pharm. J., Lond., 1909, v. 29 (83), p. 142. See also Year-Book of Pharmacy, Lond., 1909, pp. 331-333.

An editorial (Pharm. J., Lond., 1909, v. 28 (82), pp. 667-668) discusses the use of alcohol in medicine and pharmacy and the possible substitution of a mixture of acetic acid, glycerin, and water for alcohol as a menstruum.



## ALCOHOL AND ALCOHOLIC BEVERAGES AS OFFICIAL SUBSTANCES.

Table showing the evolution of alcohol and alcoholic beverages as official substances.

[Proc. Am. Pharm. Ass., 1909, v. 57, p. 792.]

|                                  | Alcohol   | Whisky   | Brandy   | White wine.                                 | Red wine.                    |
|----------------------------------|---|--|--|---|------------------------------|
| Pharm. Mass. Med. Society.....   | Alcohol, sp. gr. 0.835.....   |  |  | Vitis vinifera (Spanish white wine).        |                              |
| U. S. P., 1820.....              | Alcohol dilutum, sp. gr. 0.935.   |  |  | Vinum (the sort called Tene-<br>riffe).     |                              |
| New York U. S. P.....            | Alcohol, including prop. and med. oper.   |  |  | Vinum.....                                  |                              |
| Philadelphia U. S. P., 1830..... | Alcohol, sp. gr. 0.835.....   |  |  | Vinum (the white wine<br>called Teneriffe). |                              |
| U. S. P., 1840.....              | Alcohol, sp. gr. 0.835.....   |  |  | Vinum (berry wine).....                     | Vinum rubrum<br>(port wine). |
| U. S. P., 1850.....              | Alcohol, sp. gr. 0.835.....   |  |  | Vinum album (berry wine).                   | Vinum portense.              |
| U. S. P., 1860.....              | Alcohol, sp. gr. 0.835.....   | Spiritus frumenti.....   | Spiritus vini gallici (from<br>French wine).             | Vinum xerium.....                           | Vinum portense.              |
| U. S. P., 1870.....              | Alcohol dilutum, sp. gr. 0.941.<br>Alcohol fortius, sp. gr. 0.817.  | Spiritus frumenti.....   | Spiritus vini gallici (spirit<br>from fermented grapes). | Vinum xerium.....                           | Vinum rubrum.                |
| U. S. P., 1880.....              | Alcohol dilutum, sp. gr. 0.941.<br>Alcohol fortius, sp. gr. 0.817.  | Spiritus frumenti.....   | Spiritus vini gallici (spirit<br>from fermented grapes). | Vinum album. Vinum al-<br>bum fortius.      | Vinum rubrum.                |
| U. S. P., 1890.....              | Alcohol dilutum, sp. gr. 0.928.<br>Alcohol, sp. gr. 0.820.....  | Spiritus frumenti<br>(whisky).<br>Spiritus frumenti<br>(whisky). | Spiritus vini gallici.....<br>Spiritus vini gallici..... | Vinum album.....                            | Vinum rubrum.                |
| U. S. P., 1900.....              | Alcohol absoluteum, sp. gr. 0.787.<br>Alcohol deodoratum, sp. gr. 0.816.<br>Alcohol dilutum, sp. gr. 0.908. | Spiritus frumenti<br>(whisky).                                   | Spiritus vini gallici.....                               | Vinum album.....                            | Vinum rubrum.                |
| U. S. P., VIII.....              | Alcohol, sp. gr. 0.816.....<br>Alcohol, sp. gr. 0.797.<br>Alcohol dilutum, sp. gr. 0.908.                   | Spiritus frumenti<br>(whisky).                                   | Spiritus vini gallici.....                               | Vinum album.....                            | Vinum rubrum.                |

An editorial (N. A. R. D. Notes, v. 8, 1909, p. 345) discusses the liquors of the U. S. P. and N. F., and asserts that with all due respect for the laws of the land and to the total abstainers from liquor in any and all forms, a pharmacist should not fail to include the official liquors in his stock.

Vanderkleed, Charles E., outlines methods for the determination of alcohol in galenical preparations and points out the difficulties encountered by the presence of volatile material of various kinds.—Am. J. Pharm., Phila., 1909, v. 81, pp. 129–141. See also Bull. Am. Pharm. Ass., 1909, v. 4, pp. 80–81.

Gane and Webster discuss the determination of alcohol, ether, and chloroform in pharmaceutical preparations.—Merck's Rep., 1909, v. 18, p. 196.

Warren and Fuller discuss the influence of glycerin, acetanilide, and certain other agents in the estimation of alcohol. They review the literature on the subject and report the determination of alcohol in various mixtures.—Am. J. Pharm., Phila., 1909, v. 81, pp. 66–72.

Vigreux, Henri, describes and illustrates an apparatus for the estimation of alcohol in wines.—Bull. Soc. chim., Par., v. 5, pp. 577–578.

Scoville, W. L., reports that several hundred samples of alcohol were from 94.5 to 95.2 per cent volume.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 730.

Lythgoe, Hermann C., reports that of 42 samples of alcohol examined, only 2 were below the required strength. One of these contained 75.85 per cent alcohol by volume, the other contained 48.98 per cent alcohol by volume.—Rep. Massachusetts Bd. Health (1909), 1910, p. 469.

An editorial (Paint, Oil & Drug Rev., 1909, v. 47, Mar. 31, p. 10) asserts that from medics to mechanics alcohol is fast passing to that stage where it will no longer be depended upon as a medicine but will be used largely as a motive power or for the production of light. Physicians themselves assert that alcohol has little or no therapeutic value and that it must be relegated to the has-beens as a curative agent.

The A. Ph. A. committee on the drug market think that the action of the Internal Revenue Department, in prohibiting the sale as medicines of products nearly destitute of medicinal activity, aside from the stimulant action of the alcohol they contain, is a step forward in the protection of the public. Beside quite an array of proprietary cordials, bitters, etc., that have been condemned, beef, iron, and wine has come in for a share of disfavor.—Drug Topics, New York, 1909, v. 24, p. 372.

Hirschfeld, M., reviews the history of alcoholism.—Chem. Repert., Cöthen, 1909, v. 33, p. 261.

Hunt, Reid (Public Health Reports, XXIV, No. 41, pp. 1487-1489), reports on the Twelfth International Congress on Alcoholism and calls attention to some of the many papers that were presented.—*Am. J. Pharm.*, Phila., 1909, v. 81, p. 580.

MacDonald, James, discussing the remedial use of alcohol, concludes that a system of excessive dosage has given way to caution and conservatism in its exhibition, and the reactionary tendency to go to the opposite extreme has been indicated. Alcohol is a drug, and as such must be administered with the same precision and discrimination which we employ in prescribing other powerful drugs.—*Brit. M. J.*, 1909, v. 1, pp. 265-268. See also *Ibid.*, pp. 374, 754.

Rosenfeld, George, concludes that by abstaining from the use of alcohol in the treatment of disease we shall be acting in accordance with the fundamental principle: *Non nocere*.—*Ibid.*, p. 541.

French, J. M., asserts that there has been a great change in medical opinion and practice during the past twenty years in regard to the medicinal uses of alcohol. A quarter of a century ago the generally accepted opinion was that alcohol and a stimulant were practically synonymous, while to-day the great body of medical men everywhere are agreed that alcohol has none of the desirable properties of a stimulant and is most generally the direct opposite, a paralyzant.—*J. Therap. & Dietet.*, Boston, 1908-9, v. 3, pp. 324-326.

The editor of the Therapeutics column (*J. Am. M. Ass.*, 1909, v. 53, p. 1564) asserts that in spite of the many discussions on this subject the question is still open as to whether alcohol should ever be used as a therapeutic agent. He summarizes its applications.

The proceedings of the American Society for the Study of Alcohol and Other Drug Narcotics are reported in the *J. Am. M. Ass.*, 1909, v. 52, p. 1531.

Andrew, James Grant, has gradually abandoned the use of any antiseptic wash and is confining himself entirely to the use of alcohol, whatever the nature of the wound. He explains the favorable action as due to its powerful affinity for water, thus removing perhaps the most essential factor of bacterial growth, moisture.—*Brit. M. J.*, 1909, v. 1, p. 1062.

v. Herff, Otto, discusses the use of acetone and alcohol as disinfectants, and points out that the combination of acetone with alcohol is much more efficient than the use of either one ingredient by itself.—*Therap. d. Gegenw.*, 1909, v. 50, pp. 573-577.

Flade, Erich, presents a review of the current literature on the use and abuse of alcohol.—*Hyg. Rundschau*, 1909, v. 19, pp. 319-332.

Additional references on the chemistry, pharmacology, and uses and abuses of alcohol will be found in *Chem. Abstr.*, *Am. Chem. Soc. Exp. Sta. Rec.*, *Hyg. Rundschau*, *Jahresb. ü. Tier-Chemie*, *Proc. XIIth Internat. Cong. on Alcoholism*, *Index Medicus*, and *J. Am. M. Ass.*

## ALCOHOL, DENATURED.

A letter from a special correspondent discusses the production and consumption of denatured alcohol in the United States, and calls attention to a detailed report of the Commissioner of Internal Revenue and chief chemist, after extended tours in Europe.—Oil, Paint & Drug Reporter, New York, 1909, v. 75, February 8, p. 28 K.

An editorial (National Druggist, 1909, p. 344) calls attention to possible confusion arising from the use of the term "denatured" alcohol for official alcohol that may be obtained on physician's prescription, when denatured by the addition of some drug to render it unfit for use as a beverage. The druggist should bear in mind that the prohibition, regarding the sale of the commercial "denatured" alcohol for use as medicine, applies to medicines put up on the order of physician, as well as those made by manufacturers or by the retail druggist himself and he should therefore be on the watch to guard himself against being led into using commercial denatured alcohol for any of these purposes.

Wiley, H. W., reports on the denatured alcohol investigations conducted by the Bureau of Chemistry of the U. S. Department of Agriculture to determine the practicability of producing alcohol on a small scale from waste materials.—Ann. Rep. U. S. Dept. Agric. for 1909, 1910, p. 415.

An editorial (Paint, Oil & Drug Review, 1909, v. 47, Jan. 17, p. 10) discusses the economic practicability of introducing denatured alcohol in the United States, and points out that compared with the denatured alcohol production of Germany, that of the United States seems small indeed. Last year the American output was 7,000,000 gallons, against Germany's 120,000,000.

Schaffer, William C., thinks that the establishment of small and scattered distilleries for the manufacture of denatured alcohol would work to the advantage of all the people. It would turn enormous quantities of perishable waste into a cheap, safe, and nondecaying fuel, thus lending material aid to the conservation of our declining natural resources. At a retail price of 30 cents a gallon alcohol would enter into active competition with other fuels, and would in a few years displace gasoline and oil for internal combustion engines.—*Ibid.*, 1909, v. 48, October 13, p. 23.

Cox, Alvin J., presents some observations on industrial alcohol and its possibility as a source of power in the Philippines and concludes that it is not probable that it will be as economical a fuel as gasoline for some time to come.—Philippine J. Sc., 1909, v. 4, A., pp. 232-236.

An article by a subscriber points out that denatured alcohol can not be lawfully used in the preparation of any medicine.—Pharm. Era, 1909, v. 42, p. 680.



An editorial (Drug Topics, New York, 1909, v. 24, p. 114) calls attention to the fact that the use of denatured alcohol for medicinal preparations of any kind is absolutely prohibited. The prohibition covers preparations of all kinds, whether for internal or external use, or for veterinary remedies, or for making any medicinal preparation whatever, even if none of the alcohol remains in the finished product.

See also Practical Druggist, 1909, v. 26, p. 154.

### ALCOHOL, METHYL.

Riedel's Berichte (1909, p. xxv) presents a monograph for methyl alcohol. This substance is described as a colorless, limpid liquid, having a spirituous but not disagreeable odor. Specific gravity, 0.800–0.805, boiling point 66° C.

Dunlap, Renick W., dairy and food commissioner of Ohio, points out that the Pharmacopœia recognizes but one alcohol, ethyl or grain alcohol, and that the use of wood alcohol under such names as "Eagle Spirit" and "Columbia Spirit" for medicinal purposes is prohibited.—Midl. Drug., 1909, v. 43, p. 356. See also Rep. Ohio Dairy & Food Com. (1909), 1910, p. 42.

Vorisek, Anton, discusses the detection of methyl alcohol in ethyl alcohol, reviews the various methods recommended from time to time, and outlines a method in which a weak solution of chromic acid is used to oxidize the methyl alcohol.—J. Soc. Chem. Ind., 1909, v. 28, pp. 823–825.

Carette, H., discusses the detection of methyl alcohol in medicinal tinctures.—J. d. pharm. et d. chim., Par., 1909, v. 29, pp. 481–484.

Diekman, George C., reports that of 1,748 samples examined by the Eastern Branch, 15, or 0.858 per cent, contained methyl alcohol.—Rep. New York Bd. Pharm. (1909), 1910, p. 12.

Thurston, Azor, reports 3 samples of bay rum, out of 14 examined, which contained wood alcohol.—Proc. Ohio Pharm. Ass., 1909, p. 63.

Shafer, C. M., in a paper on the quality of the drugs dispensed by physicians reports that a fluid extract, purchased from a pharmaceutical house of irreproachable reputation, was found to have been made with wood, instead of grain, alcohol.—*Ibid.*, p. 47.

The Belgian inspectors of pharmacies report that they have found, under the name of alcohol No. 2 and alcohol special, rectified wood spirit.—J. d. pharm. d'Anvers, 1909, v. 65, p. 585.

Pierce, A. H., reports two fatal cases of poisoning by wood alcohol.—Boston M. and S. J., 1909, v. 160, pp. 237–239.

The Vienna correspondent (Lancet, 1909, v. 177, p. 965), reports that 40 persons in a Vienna suburb were poisoned by methylated gin.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 100–101), in a review of recent literature relating to methyl alcohol,

points out that, among the laity and apparently among certain members of the profession, there is a lack of definite knowledge as to the action of methyl alcohol on its internal administration.

### ALOE

The report of the White Cross Congress held in Paris in October, 1909, suggests that aloes of good quality should give a minimum of 60 per cent of aqueous extract and a maximum of 1.50 per cent of ash.—Chem. & Drug., Lond., 1909, v. 75, p. 682.

Umney, J. C., points out that the description of aloes covers the principal commercial varieties of aloes, viz, Cape, Barbadoes, and Socotrine, but the water-soluble extract is given as 40 per cent, which is about the normal standard for Socotrine, that of Barbadoes being as a rule as high as 80 per cent. The standard is that of the French Codex. The figure for ash is in the preliminary report left blank. From 1 to 1.25 per cent is a desirable figure.—*Ibid.*, p. 579.

Schamelhout, A., states that good qualities of aloes should furnish at least 60 per cent of aqueous extract and yield not more than 1.5 per cent ash. The Ph. Belg. III requires at least 40 per cent aqueous extract with no indication as to ash content.—Bull. Soc. roy. d. pharm. Brux., 1909, v. 53, p. 336.

A committee of the Syndicat général de la Droguerie française asks that the limit of ash in Cape aloes be raised from 1 to 1.50 per cent to 4 to 5 per cent.—Bull. sc. pharmacol. Par., 1909, v. 16, p. 288.

The committee of reference in pharmacy asserts that after discussion it was agreed that it was desirable to embody the descriptions of both Aloe Barbadosis and Aloe Socotrina in one monograph.—Chem. & Drug., Lond., 1909, v. 74, p. 289.

Rusby, H. H., points out that if we are to say "or other species of aloe" there is no use in naming any species. An endeavor should be made to frame a description (not only the presence of aloin) that would determine whether the article is acceptable, and then say "from various species of aloes."—Pharm. Era, 1909, v. 42, p. 633.

Beringer, George M., points out that the official title and definition attempts to include under aloes at least three commercial varieties. He recommends that in the coming revision each commercial variety recognized be treated under a separate subheading with appropriate descriptions and tests.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 811.

Caldwell, Paul, points out that the Pharmacopœia gives a wide latitude in the selection of aloes. Besides mentioning three species it adds "or other species," which leads him to say that "aloes" as such, might be dropped and "aloe purified" retained in order to be in line with the food and drugs act.—Bull. Pharm., 1909, v. 23, p. 115.

Gane and Webster assert that if recognition is continued to aloes, the nitric acid test should be modified in conformity with the rubric, which permits the use of any variety of aloes.—*Drug Topics*, New York, 1909, v. 24, p. 340.

Lehn & Fink point out that the term "Barbadoes" aloes is a misnomer and present correspondence which would indicate that for a number of years no aloes has been produced on the island of Barbadoes. They conclude that it is evidently incumbent upon the framers and revisers of the U. S. P. to reform its nomenclature to make it conform with the food and drugs act.—*Am. J. Pharm., Phila.*, 1909, v. 81, pp. 227-231.

See also Beringer: *Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 730.

Remington, Joseph P., commenting on the criticism by Lehn & Fink, points out that the word "Barbadoes" does not appear in either the official definition or description of aloes. The words (*Aloe Barbadosis*, *Aloe Socotrina*, *Pharm.* 1890) are used in the eight revision of the *Pharmacopœia* merely as a synonym, showing what varieties of aloes were official in the 1890 edition. The U. S. P. VIII recognizes every variety of aloes answering the official tests for identity and purity and does not specify the geographic source of the drug.—*Am. J. Pharm., Phila.*, 1909, v. 81, p. 260.

Caesar & Loretz (*Geschäfts-Ber.*, 1909, p. 9) assert that some varieties of aloes have been unusually scarce and that the official (German) Cape aloes was frequently lower in price than the otherwise common Curaçao aloes.

Condò-Vissicchio, G., reports a comprehensive study of Sicilian aloes, the characteristics of the juice, the production of the drug, and the nature of the contained aloin, and concludes that the wild plant of *Aloe vulgaris* growing on the island of Sicily yields an aloes which is rich in aloin, and that this aloin differs materially from that obtained from similar plants grown on the island of Barbadoes.—*Arch. d. Pharm.*, 1909, v. 247, pp. 81-95.

Holmes, E. M., in discussing the materia medica of Perak, points out that Indian aloes, "Karia-polam," has the appearance of Curaçao aloes of good quality, and gives the crimson reaction with nitric acid.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 754.

Lothian, John, reports on an alkaloidal color reaction with aloes.—*Pharm. J., Lond.*, 1909, v. 28 (82), p. 428. See also *Chem. & Drug., Lond.*, 1909, v. 74, p. 501.

Oesterle and Riat present a further contribution to our knowledge of aloe emodin.—*Arch. d. Pharm.*, 1909, v. 247, pp. 413-417.

Southall Bros. & Barclay (Rep. 1908-9, Birmingham, 1910, p. 6) report examining 21 samples of Socotrine aloes, which showed a great variation with regard to solubility in water. The figures obtained ranged from 17.2 to 49.7 per cent and averaged 26.8 per cent.

The Belgian inspectors of pharmacies state that aloes of bad quality is still found in drug stores, coming probably from the bottoms of the containers and mixed with impurities.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 548.

Beringer, George M., thinks that aloes of good quality is always obtainable and that there is no longer any need for purified aloes and this title and formula can be dispensed with.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 811.

Gane and Webster assert that purified aloes will presumably be dropped anyway, as it is not a desirable product and is seldom called for, owing to the good condition in which the crude drug comes into the market.—*Drug Topics*, New York, 1909, v. 24, p. 340.

Diehl, C. L., reports from the committee on N. F. recommending the deletion of compound decoction of aloes.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1061.

Fussell, M. H., thinks that pills of aloes and iron should be relegated to the National Formulary.—*Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, p. 205.

Posey, H. G., asserts that powder of aloes and canella N. F. should be dropped.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 993.

Cook, E. Fullerton, reports that it is desirable to state in the directions, for tincture of aloes and tincture of aloes and myrrh, that the drugs be mixed before introducing them into the bottle or flask for maceration.—*Ibid.*, p. 1000.

Schamelhout, A., notes that the French tincture of aloes is prepared in the proportion of 20 gm. of aloes per 100 gm. of 60 per cent alcohol; the Belgian 24 gm. of aloes per 80 gm. of 70 per cent alcohol.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 81.

Valeri, G. B., reports some observations on the modification of the purgative action of aloes by bile.—*Arch. internat. d. pharmacod. et d. therap.*, 1909, v. 19, p. 313.

Becker, Henry C., points out that aloes and its active principle, aloin, are still much used, especially in combination in pill form. Their action is to stimulate peristalsis and the cholagogue action of the liver. Aloes gripes, aloin not so much so; accordingly, it is well to combine aloes with mastich, myrrh, asafetida, etc., as in the official pills.—*Merck's Arch.*, 1909, v. 11, p. 278.

Curryer, W. F., has found aloes useful in sluggish digestion and constipation, congestion in the liver and spleen, and hyperæmia in the vessels of the pelvic organs; hæmorrhoids, with morning diarrhœa, with burning and tenesmus, hyperæmia of the venous net of the neck of the bladder. It is a remedy of great value in dysentery or all looseness attended with tenesmus.—*J. Therap. & Dietet.*, 1909-10, v. 4, p. 396.

**ALOINUM.**

Riedel's *Berichte* (Berlin, 1909, p. xxv) presents a monograph on aloin, including an enumeration of its properties and tests for purity. The chemical formula is given as  $C_{10}H_{16}O_7 + 3H_2O$ , and the substance is required to be soluble in hot water and in alcohol.

The committee of reference in pharmacy presents a modified monograph for aloinum.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 289.

Gane and Webster think the solubility tests for aloin, even as modified by the additions and corrections are rather stringent though some commercial products will pass them. A very slight concession might be permitted without interference with the medicinal virtues.—*Drug Topics*, New York, 1909, v. 24, p. 340.

Dohme and Engelhardt call attention to the so-called sicaloin, derived from aloes which grows wild in Sicily. The aloin in this aloes is present to about 80 per cent, and was recently investigated by Condò-Vissicchio. It differs from barbaloin in lacking one methoxy group.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 718.

Pearson, W. A., finds it difficult to get aloin which fulfills all U. S. P. requirements.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 178.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 6) report several samples of aloin possessing a purity of from 96.6 to 97.6 when assayed by a modification of the Koppeschaar bromine method for estimation of phenol; ash content 0.4 to 0.7 per cent; melting point close to  $147^{\circ}C$ . Einodin was practically absent in every case.

Moerk, Frank X., points out that in connection with the pharmacopœial statement that aloin loses one molecule of  $H_2O$  at  $100^{\circ}C$ ., neither formula nor the equivalent per cent of water is given.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 925.

Robinson and Simonsen report experiments on the constitution of the aloins.—*J. Chem. Soc.*, Lond., 1909, v. 95, pp. 1085–1096.

**ALTHÆA.**

Capps, Pratt, McCrae, and Halsey, recommend the deletion of althæa from the U. S. P.—*J. Am. M. Ass.*, 1909, v. 53, p. 792.

The Belgian inspectors of pharmacies state that althæa roots are sometimes found moldy. The powder of the root sold as a veterinary medicament is made with waste or the stems predominate. It gives too large a proportion of ash.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 550.

**ALUMEN.**

The committee of reference in pharmacy suggests the retention of potassium and ammonium alums and reports that the tests are being verified.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 289.

Gane and Webster think that both the potassium and ammonium alums should be recognized, the former only being employed for the preparation of "burnt" alum.—*Drug Topics*, New York, 1909, v. 24, p. 340.

Telle, Lucien, contributes a note on the volumetric estimation of alum and describes a method dependent upon the reaction which takes place in the presence of a fluoride.—*Bull. sc. pharmacol., Par.*, 1909, v. 16, pp. 656–658.

Graham, Willard, reports observations on the loss in weight of powdered alum after heating, and the rapidity with which moisture is reabsorbed by the partially dry powdered alum.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 183.

The Belgian inspectors of pharmacies report that alum is contaminated by traces of iron.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 584.

Schamelhout, A., notes, however, that the Ph. Belg. III tolerates a minimum quantity of iron.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 234.

Harbert, J. P., asserts that alum in the form of a stick or flattened pencil is a very useful application for mild forms of trachoma and for long-standing cases of conjunctivitis. It may also be used in solution in the strength of 1 to 5 grains per ounce of water.—*Eclectic M. J., Cincin.*, 1909, v. 69, p. 530.

Reynolds, Charles W., reports the successful treatment of rhus poisoning on his own person by means of alum.—*Eclectic Rev.*, 1909, v. 12, p. 154.

#### ALUMEN EXSICCATUM.

Gane and Webster point out that exsiccated alum is required to contain not less than 99 per cent of pure anhydrous aluminum and potassium sulphate. Nevertheless a limit should be set to the amount of moisture allowable, in view of the fact that the powder is hygroscopic, and the preface directs that powders are to be dispensed in "a condition of sensible dryness;" a limit of not to exceed 1 per cent would be satisfactory.—*Drug Topics*, New York, 1909, v. 24, p. 341.

LaWall, Charles H., reports that samples of commercial exsiccated or burnt alum contained from 10 to 15 per cent of water.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 370.

Lyons, A. B., comments on the U. S. P. requirement, that alumen exsiccatum should contain not less than 99 per cent of pure anhydrous aluminum and potassium sulphate.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 799.

Graham, Willard, reports observations on the moisture absorption of exsiccated alum. He finds that a sample exposed to the air will absorb upward of 36 per cent of moisture. If kept in well stoppered

bottles, the amount of water absorbed will be much less. He believes, however, that the Pharmacopœia should allow the presence of from 5 to 10 per cent of water in the exsiccated product.—Proc. Pennsylvania Pharm. Ass., 1909, pp. 182–184.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 6) report arsenium in quantities from 16 to 20 parts per million in three samples of exsiccated alum. All were free from other poisonous metals, iron being the only notable impurity.

#### ALUMINI HYDROXIDUM.

Gane and Webster assert that aluminum hydroxide would not be missed from the Pharmacopœia, as it is practically obsolete.—Drug Topics, New York, 1909, v. 24, p. 341.

#### ALUMINI SULPHAS.

Gane and Webster assert that aluminum sulphate is so rarely used that there is no necessity for recognizing it officially.—Drug Topics, New York, 1909, v. 24, p. 341.

#### AMMONII BENZOAS.

Gane and Webster assert that there is no necessity for retaining ammonium benzoate in the Pharmacopœia, as the average physician rarely prescribes it.—Drug Topics, New York, 1909, v. 24, p. 431.

The committee of reference in pharmacy suggests that a test for lead (10 parts per million) be provided in connection with ammonium benzoate.—Chem. & Drug., Lond., 1909, v. 74, p. 289.

#### AMMONII BROMIDUM.

Gane and Webster think a method should be given by which the percentage of chloride, an almost invariable impurity, can be calculated. The assay simply states that not more than 31.6 cc. of N/10 silver nitrate should be required to decompose 0.3 gm. of the salt. They outline a way by which this may be amplified.—Drug Topics, New York, 1909, v. 24, p. 341.

The committee of reference in pharmacy suggests that a test for lead in ammonium bromide be provided (10 parts per million).—Chem. & Drug., Lond., 1909, v. 74, p. 289.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 8) report 15 samples of ammonium bromide examined, lowest recorded purity 98.32 per cent, highest 99.8 per cent. The difference was due to chloride mainly, other objectionable impurities occurring in negligible quantities.

## AMMONII CARBONAS.

The committee of reference in pharmacy asserts that the titration value of ammonium carbonate is too high, and recommends that a test for lead be provided (5 parts per million).—Chem. & Drug., Lond., 1909, v. 74, p. 289.

Dunn, John A., thinks that instead of weighing the ammonium carbonate by itself in making the U. S. P. assay it is better to place the water in the flask first, weigh, then add the ammonium carbonate and weigh again. This gives the weight of the sample. Titrate with normal sulphuric acid volumetric solution, using methyl orange as indicator.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 951.

Patch, E. L., asserts that ammonium carbonate does not meet U. S. P. requirements for strength when other tests are met. Samples varied from 91.89 to 96.09 per cent pure.—*Ibid.*, p. 730.

Dohme and Engelhardt report finding one sample of ammonium carbonate with only 28 per cent of available ammonia.—*Ibid.*, p. 713.

Bachman, Gustave, found ammonium carbonate 90.66 to 95.51 per cent pure.—Proc. Minnesota Pharm. Ass., 1909, p. 70.

Southall Bros. & Barclay (Rep. 1908-9, Birmingham, 1910, p. 27) report that samples of ammonium carbonate carefully freed from any effloresced matter have given as high as 97.52 per cent of  $N_2H_{11}C_3O_6$ .

## AMMONII CHLORIDUM.

The committee of reference in pharmacy suggests that a test for lead in ammonium chloride be provided (5 parts per million).—Chem. & Drug., Lond., 1909, v. 74, p. 289.

Claassen, Oswald, describes and illustrates an apparatus for the estimation of ammonia in ammonium chloride.—Chem. Ztg., Cöthen, 1909, v. 33, p. 952.

Johnson, F. M. G., presents some observations on the vapor pressure of ammonium haloids, particularly ammonium chloride.—Ztschr. f. physik. Chem., 1908-1909, v. 65, pp. 38-40.

Wegscheider, Rud., discusses the vapor pressure of ammonium chloride.—*Ibid.*, pp. 97-110.

Gane and Webster have had submitted to them a sample of what was stated to be commercial ammonium chloride, but which on examination was found to consist of a mixture of sodium and calcium chlorides with the soda in large excess.—Drug Topics, New York, 1909, v. 24, p. 4.

Dohme and Engelhardt report rejecting a sample of ammonium chloride because of its assaying only 98 per cent pure.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 713.



Pearson, W. A., found one sample of ammonium chloride greatly discolored with iron and containing 2 per cent of sodium chloride.—Proc. Pennsylvania Pharm. Ass., 1909, p. 178.

Kline, C. M., reports from 2 to 50 per cent of salt in sal ammoniac.—Proc. N. W. D. A., 1909, p. 135.

The Belgian inspectors of pharmacies report that ammonium chloride is contaminated by empyreumatic matters and frequently mixed with a large proportion of sodium chloride.—J. d. pharm. d'Anvers, 1909, v. 65, p. 584.

Webb, Frank, asserts that Ammonium mur. in the treatment of tonsillitis acts best in stout, blond individuals. Tendency to crumbling stools. One nostril closed at a time. Excoriating watery discharge from nose, making nostrils and upper lip sore. Hoarseness, burning, and rawness in larynx, worse in the morning on rising.—J. Therap. & Diet., 1909-10, v. 4, p. 145.

Stephens, A. F., points out that ammonium chloride is indicated in cases of pertussis when the secretions are tenacious, white, and thick.—Nat. Eclect. Med. Ass. Quart., 1909-10, v. 1, p. 126.

#### AMMONII IODIDUM.

Patch, E. L., asserts that some lots of ammonium iodide contain over 5 per cent potassium iodide.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 730.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 8) report the purity of two samples as 99.6 and 99.3 per cent, the latter containing 0.6 per cent of chloride.

A committee of the Syndicat général de la Droguerie française asks that ammonium iodide should leave a residue of 0.25 to 0.50 on calcination.—Bull. sc. pharmacol. Par., 1909, v. 16, p. 288.

#### AMMONII SALICYLAS.

Gane and Webster point out that ammonium salicylate was introduced presumably because some of the revision committee supposed it to be superior to the sodium salt, but physicians have not taken to it, and its little use does not warrant its retention in the Pharmacopœia.—Drug Topics, New York, 1909, v. 24, p. 341.

Riedel's Berichte (Berlin, 1909, p. xxvii) presents a monograph on ammonium salicylate with an enumeration of its properties and a number of tests.

Seidell, Atherton, points out that the U. S. P. requires that ammonium salicylate be soluble in 0.9 parts of water; his results would indicate that it is soluble in 0.97 parts of water. The official solubility in alcohol is 2.3 parts; his results would indicate that it is soluble in 2.33 parts.—J. Am. Chem. Soc., 1909, v. 31, p. 1168.

## AMMONII VALERAS.

Gane and Webster assert that it is pretty generally recognized that valerian and valerianates have little medicinal value, and their use is merely a survival of the times when it was imagined that the more nauseous the dose the greater the medicinal effect. The ammonium compound is particularly objectionable on this account.—*Drug Topics*, New York, 1909, v. 24, p. 341.

Riedel's *Berichte* (1909, p. xxix) presents a descriptive monograph for ammonium valerate the composition of which is given as  $C_6H_7COONH_4$ .

A committee of the *Syndicat général de la Droguerie française* asks that a slight degree of acidity be permitted in ammonium valerate.—*Bull. sc. pharmacol. Par.*, 1909, v. 16, p. 288.

Merck, E. (Darmstadt), states that valerianate of ammonia  $C_6H_7O_2NH_4$  is very unstable; it rapidly loses ammonia and acquires in consequence an acid reaction; it is extremely hygroscopic and its crystallized form is obtained only with difficulty. The substance having the following composition is much more stable and much more easily prepared:  $C_6H_7O_2NH_4 + 2C_6H_{10}O_2$ . At first, the U. S. P. VIII [1905], contained valerianate of ammonia  $C_6H_7O_2NH_4$  (the same as the Ph. Fr. V); but this salt was on his [Merck's] suggestion discarded by the committee of revision of the [U. S.] Pharmacopœia [1907], and replaced by the acid ammonium valerianate  $C_6H_7O_2NH_4 + 2C_6H_{10}O_2$ .—*Ibid.*, v. 16, p. 544.

## AMYGDALA.

The Belgian inspectors of pharmacies state that almonds, both sweet and bitter, leave something to be desired. They are old, rancid, and worm-eaten.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 548.

Collin, Eng., discusses the adulteration of almonds, more particularly almond meal.—*Ann. d. Falsif.*, 1909, v. 2, pp. 158–160.

Debrun, C., discusses the bleaching of almonds by means of Javelle water.—*Ibid.*, p. 200.

Walker and Krieble report a study of the amygdalins.—*J. Chem. Soc., Lond.*, 1909, v. 95, pp. 1437–1449.

Auld, S. J. Manson, in a further contribution on the decomposition of amygdalin by emulsin, discusses the synthesis of d-benzaldehyde-cyanohydrin.—*Ibid.*, pp. 927–930.

Feist, K., reports observations on the splitting of amygdalin by emulsin under various conditions.—*Arch. d. Pharm.*, 1909, v. 247, pp. 542–545.

Diehl, C. L., reports from the committee on N. F. recommending the deletion of compound powder of almond.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1083.

Beringer and Beringer recommend that, in the sirup of almond, the spirit of bitter almond be increased to 20 cc. in the liter, and that stronger orange flower water be used; also that extemporaneous preparation be directed.—*Proc. New Jersey Pharm. Ass.*, 1909, p. 89.

#### AMYLIS NITRIS.

Gane and Webster think that a boiling point limit should be fixed in addition to the 80 per cent assay method for amyl nitrite.—*Drug Topics*, New York, 1909, v. 24, p. 341.

The committee of reference in pharmacy asserts that experiments to improve the description and tests of amyl nitris are being carried out.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 289.

Frey, Ernst, discusses the influence of amyl nitrite on pulmonary circulation and concludes that this substance has no direct influence on the blood vessels of the lung.—*Ztschr. f. exper. Path. u. Therap.*, 1909-10, v. 7, p. 53.

Webb, Frank, asserts that amyl nitrite gtt. 3 in a little water is useful in those cases of asthma where the blood surges to the face and head with intense flushing and burning.—*J. Therap. & Diet.*, 1909-10, v. 4, p. 108.

Wallace and Ringer discuss the lowering of blood pressure by the nitrite group, with a brief summary of the relative advantages of the several members of this group.—*J. Am. M. Ass.*, 1909, v. 53, pp. 1629-1630.

Brown, Alexander G., discusses the use of nitrites in the therapeutic management of arteriosclerosis, and points out that the official members of this group are amyl nitrite, spirit of glyceryl trinitrate, and sodium nitrite.—*Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, p. 31.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 106-107) quotes von Rzentkowski (*Ztschr. f. klin. Med.*, 1907, v. 68, pp. 111-120), who shows that amyl nitrite acts differently upon healthy and upon sclerotic arteries, so much so that it furnishes a means of diagnosing arteriosclerosis with certainty.

#### AMYLUM.

Gane and Webster think it is not necessary to restrict starch to the corn variety. All starches are used for medicinal purposes, and one is not much better than another. The use of any of the commercial varieties should be permitted, provided they come up to the other requirements. A limit to the amount of moisture allowable should also be fixed.—*Drug Topics*, New York, 1909, v. 24, p. 341.

Schamelhout, A., notes that only wheat starch is officinal in France; the fecula of the potato is mentioned in a special article. In Belgium

one may employ under the name of starch the starch of rice, maize, and arrowroot.—Bull. Soc. d. pharm., Brux., 1909, v. 58, p. 5.

An editorial (Pharm. J., Lond., 1909, v. 28 (82), p. 250) points out that the recommendation of the committee of reference in pharmacy to amend the litmus test for starch is a wise one, as it frequently happens that starch may have either a slight acid or alkaline reaction. Wheat starch, for example, is often acid, while maize and rice starch may be alkaline.

See also Chem. & Drug., Lond., 1909, v. 74, p. 289.

Lenz, Wilhelm, describes a new microchemical method of differentiating starches.—*Ibid.*, v. 74, p. 875. See also Proc. VIIth Internat. Congress App. Chem., Sec. VIIIb, Pharmacy, 1909, London, 1910, p. 60; and Arb. a. d. pharm. Inst. d. Univ. Berl. (1909), 1910, v. 7, pp. 223–228.

Moerk, Frank X., thinks the pharmacopœial requirement that starch should show not less than 95 per cent of hydrolyzable carbohydrate is an indefinite one.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 925.

Olson, Geo. A., reports observations on a rapid method of hydrolyzing starch.—J. Ind. Eng. Chem., 1909, v. 1, pp. 445–447.

“Mgr” reviews some of the recent discussions on the polarimetric estimation of starch.—Pharm. Zentralh., 1909, v. 50, pp. 569–570.

Fouard, Eugène, discusses the solubilization of colloidal starch by means of alkalies.—Bull. Soc. chim., Par., 1909, v. 5, pp. 828–834.

See also Tanret, Charles.—*Ibid.*, pp. 902–905.

A number of articles relating to the manufacture and use of starch are presented.—Proc. VIIth Internat. Congress App. Chem., Sec. VIa, Starch Industry, 1909, London, 1910.

Caldwell, Paul, points out that glycerite of starch decomposes and loses its consistency readily. A glycerite of tragacanth, he thinks, would make a better preparation of the kind.—Bull. Pharm., 1909, v. 23, p. 116.

#### ANISUM.

Gane and Webster assert that the oil of anise being the only part used, there is no need of retaining the fruit; but in the event of the revision committee deciding otherwise, a limit of ash should be added. Not to exceed 4 to 5 per cent would be a fair minimum.—Drug Topics, New York, 1909, v. 24, p. 341.

The committee of reference in pharmacy recommends examination by lens to detect added mineral matter in anise. It also asserts that the use of an ash limit appears undesirable, as fruits very rich in oil yield a very high percentage of ash.—Chem. & Drug., Lond., 1909, v. 74, p. 289.

The report of the White Cross Congress held in Paris in October, 1909, asserts that the percentage of foreign matter in aniseed, cassia,

and cummin and coriander seeds, was discussed at length, and it was finally voted that 2 per cent or 3 per cent of earthy or stony matter should be the maximum tolerated.—*Ibid.*, 1909, v. 75, p. 682.

See also Schamelhout, A.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 336.

The Belgian inspectors of pharmacies state that the fruits of Russian anise which they have encountered are badly culled, mixed with foreign seeds and with earth. The powder gives too high a proportion of ash and is less rich in oil than the powder of Spanish anise, which should be given the preference.—J. d. pharm. d'Anvers, 1909, v. 65, p. 548.

### ANTHEMIS.

Capps, Pratt, McCrae, and Halsey, recommend the deletion of anthemis from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

Gane and Webster report that anthemis is still a popular household remedy, but hardly ever found in prescriptions. As the Pharmacopœia in all probability will ultimately become a standard more for household remedies than for articles prescribed by physicians, it may be well to continue official recognition of this harmless drug.—Drug Topics, New York, 1909, v. 24, p. 341.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 20) report on 5 oils distilled from English chamomile flowers; specific gravity, 0.905 to 0.9075. Soluble in from 5 to 10 parts of 70 per cent alcohol.

### ANTIMONII ET POTASII TARTRAS.

An unsigned article quotes from a report by Acting Consul W. M. Hewlett on the preparation of antimony in China, who points out that the increase in the export of crude antimony and the decrease in the export of the ore are both noticeable.—Brit. & Col. Drug., 1909, v. 56, p. 53.

Coblentz and May report a study of antimony and potassium tartrate, they present comparative results obtained by various methods, and conclude that the present test for heavy metals (in alkaline solution) is objectionable owing to the fact that a yellowish coloration always results upon the addition of  $H_2S$  solution to the alkaline solution of the pure salt.—Merck's Rep. 1909, v. 18, pp. 195-196.

The committee of reference in pharmacy asserts that the formula for antimonium tartaratum should be halved and the tests revised.—Chem. & Drug., Lond., 1909, v. 74, p. 289.

A committee of the Syndicat général de la Droguerie française asks that the limit of solubility in water of antimony and potassium tartrate be raised from 15 to 20 parts.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 288.

Poulenc Frères assert that in the conditions indicated by the Ph. Fr. V, soluble in a little less than 15 parts of water at 15°, the solubility is not perfect.—*Ibid.*, p. 409.

Sanger and Riegel report observations on the quantitative estimation of antimony by the Gutzeit method.—*Ztschr. f. anorg. Chem.*, 1909-10, v. 65, pp. 16-24.

McCay, Leroy W., in a paper on the separation of tin and antimony, discusses the determination of the percentage of antimony in samples of tartar emetic.—*J. Am. Chem. Soc.*, 1909, v. 31, p. 381.

Patch, E. L., found no antimony and potassium tartrates free from arsenic.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 731.

Bachman, Gustave, reports that in the antimony and potassium tartrate examined, he found 92.9 per cent minimum, and 99.37 per cent maximum.—*Proc. Minnesota Pharm. Ass.*, 1909, p. 71.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 10) report that the 10 samples examined yielded the equivalent of from 43.8 to 44.7 per cent of antimonious oxide. Traces of acidity were noticed in all.

Southall Bros. & Barclay (Rep. 1908-9, Birmingham, 1910, p. 28) experienced much difficulty in obtaining tartrated antimony free from an excessive proportion of arsenic. Forty per cent of samples examined have proved to contain over 40 parts per million.

Guidry, A. J., thinks that white wine is of no practical value in the making of wine of antimony, medicinally or otherwise. The 17.5 per cent of alcohol that it contains is sufficient to preserve it.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 233.

An editorial (*Am. Vet. Rev.*, 1909, v. 35, pp. 373-375) discusses the use of tartar emetic as an anthelmintic for horses.

Curryer, W. F., asserts that antimonium tart. has in the past had an unpleasant reputation, but on closer investigation important medical properties have been developed.—*J. Therap. & Diet.*, 1909-10, v. 4, p. 396.

#### ANTIMONII SULPHURATUM N. F.

Alcock, F. H., discusses the composition and uses of sulphurated antimony.—*Year-Book of Pharmacy*, Lond., 1909, pp. 297-299. See also *Pharm. J.*, Lond., 1909, v. 28 (82), p. 555.

The committee of reference in pharmacy asserts that it has been shown that the product obtained by exactly following the official process does not comply with the official tests, and suggests that the characters and tests be modified.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 289.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 10) report 5 samples of sulphurated antimony examined with residue of oxide

from 8 gm., according to the modified Ph. Brit. method, of from 1.3 to 1.97 gm.; and from faint to heavy traces of sulphates. Not one sample was entirely soluble in sodium hydrate solution.

### ANTIPYRINA.

Hunt, Reid, points out that the name antipyrine, a name which in no ways suggests the chemical nature of the substance, has been adopted by the United States as well as by most foreign pharmacopœias; the German, however, has adopted the name pyrazolonum phenyldimethylicum and the British that of phenazonum.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 14.

Beringer, George M., thinks that the Latin title for antipyrine should be antipyrinum rather than antipyrina, but the title is objectionable and should be changed to phenazonum.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 795.

Mittelbach, Wm., asks why acetanilide and antipyrine should end with the superfluous *e*, while acetphenetidin (phenacetin) does not. He thinks it would simplify matters if these titles should all agree, and the *e* be dropped. Germany, the birthplace of antipyrine, does not use the *e*; why should we?—Bull. Am. Pharm. Ass., 1909, v. 4, p. 60.

Fourneau, Ernest, in a paper on trade marks in matters pharmaceutical, presents an interesting review of the history of antipyrine.—Bull. sc. pharmacol. Par., 1909, v. 16, pp. 330–338, 412–420.

A news note points out that the Tribunal de la Seine has ordered the managers of the French branch of the Laboratories Sauter, of Geneva, to pay 2,000f. compensation to the Compagnie Parisienne de Couleurs d'Anilin for illegal use of their trade-mark "Antipyrine du Dr. Knorr."—Chem. & Drug, Lond., 1909, v. 75, p. 4.

Primot, Charles, describes the extremely sensitive reaction between antipyrine and vanillin.—Bull. sc. pharmacol. Par., 1909, v. 16, p. 270.

Wilson, Thomas, reports on the coloration in a phenazone mixture containing citrate of caffeine and sodium bromide; the disturbing factor he believes to be the free citric acid.—Pharm. J., Lond., 1909, v. 29 (83), pp. 804–805. See also Brit. & Col. Drug., 1909, v. 56, p. 534.

Bulletin No. 126 (Bureau of Chemistry, U. S. Department of Agriculture, 1909, pp. 85) contains a compilation of data on the harmful effects of acetanilide, antipyrine, and phenacetin.

Hale, Worth, reports an experimental study on the influence of certain drugs upon the toxicity of acetanilide and antipyrine.—Bull. Hyg. Lab., U. S. P. H. and M. H. S., 1909, No. 53, pp. 57.

Seifert, Otto, reports that a number of observers have noticed rather severe skin eruptions following the use of antipyrine which

evidently has a toxic action on the walls of blood vessels.—Apoth. Ztg., Berl., 1909, v. 24, p. 19.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 111-112) quotes Senftleben, who is convinced that the great majority of cases of whooping cough may be cured, or at any rate greatly relieved by quinine or better still by antipyrine.

#### APOCYNUM.

Gane and Webster point out that the great uncertainty surrounding the action of the drug and the difficulty experienced in obtaining the product of the true official species has resulted in the apocynum falling into disrepute. It is less and less used every year.—Drug Topics, New York, 1909, v. 24, p. 341.

Beringer, George M., thinks that the definition of apocynum certainly needs revision, and that the descriptions would be improved by addition of the histologic characters of the drug and common adulterants.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 811.

Rusby, H. H., points out that under apocynum we read "the rhizome of *Apocynum cannabinum* or allied species." He asserts that no one can tell which species.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 188. See also Pharm. Era, 1909, v. 42, p. 633.

Moore, Charles Watson, reports a study of the constituents of the rhizome of *Apocynum androsæmifolium*.—J. Chem. Soc., Lond., 1909, v. 95, pp. 734-751. See also Pharm. J., Lond., 1909, v. 28 (82), p. 431.

Lloyd, John Uri, states that the indications now are that the old Eclectic remedy apocynum may creep into favor with the Allopathic school; one of the reasons for believing this being the fact that an examination of the drug in England made by Charles W. Moore, under the auspices of Frederick B. Power of the Wellcome Chemical Research Laboratories, shows that from apocynum can be obtained a poison, and that this poisonous substance is capable of killing dogs in a very short time.—Eclectic M. J., Cincin., 1909, v. 69, pp. 454-456.

Howes, Pitts Edwin, asserts that apocynum is one of the remedies on which one can place great reliance in the treatment of œdema in rheumatic patients.—J. Therap. & Dietet., Boston, 1908-9, v. 3, p. 218.

Leming, W., asserts that the specific indications for apocynum cannabinum are enfeebled heart action and circulation with cellular fullness and dropsy.—*Ibid.*, 1909-10, v. 4, pp. 305-307.

Fyfe, John William, asserts that apocynum cannabinum is a remedy of varied usefulness, but is perhaps more frequently employed in the treatment of dropsical conditions.—Eclectic Rev., 1909, v. 12, pp. 83-85.



Graham, J. C. W., discusses the pharmacology of *Apocynum cannabinum*, and presents a report on a number of observations illustrated by tracings.—*Biochem. J.*, Liverpool, 1909, v. 4, pp. 385–404.

Laidlaw, P. P., presents a preliminary note on the pharmacological action of a crystalline substance isolated from *Apocynum cannabinum*, by H. Finnemore, to which the name cynotoxin has been given.—*Proc. Physiol. Soc.*, *J. Physiol.*, Lond., 1909, v. 38, p. lxxvi.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 198–199) quotes Kraemer, whose observations appear to confirm the diuretic properties of *apocynum cannabinum* already described by other authors.

#### APOMORPHINÆ HYDROCHLORIDUM.

Düsterbehn points out that the Ph. Fr. V. requires that apomorphine be examined microscopically for the presence of morphine hydrochloride.—*Apoth. Ztg.*, Berl., 1909, v. 24, p. 228.

The committee of reference in pharmacy asserts that the sentence about the salt being rejected in apomorphine hydrochloride because its solution is green should be omitted, and asserts that the description should read: "The salt,  $C_{17}H_{17}NO_2 \cdot HCl$ , obtained by heating morphine with water and hydrochloric acid under pressure." The characters and tests are also to be revised.—*Chem. & Drug. Lond.*, 1909, v. 74, p. 289.

Merck, E. (Darmstadt), recommends that to the Ph. Fr., V, statement that the addition of an alkaline bicarbonate solution to the aqueous solution of apomorphine hydrochloride furnishes a white precipitate, there be added "which little by little becomes green."—*Bull. sc. pharmacol.*, Par., 1909, v. 16, p. 544.

Dott, D. B., presents a note on apomorphine hydrochloride, reports an ultimate analysis which would indicate that this salt has the formula  $C_{16}H_{16}N_2O_2 \cdot 2HCl \cdot 2H_2O$ , and points out that in an ultimate analysis the percentage of carbon required by the old formula is 76.4, by that proposed 73.9, while the corresponding percentages of hydrogen are 6.36 and 6.52.—*Merck's Report*, 1909, v. 18, p. 39 (*From Pharm. J.*, Lond., 1908.)

Harnack and Hildebrandt report observations on the activity of apomorphine preparations and point out that there are undoubtedly several apomorphines, closely related chemically, that show considerable difference in their activity on warm-blooded animals.—*Arch. f. exper. Path. u. Pharmacol.*, Leipz., 1909, v. 61, pp. 343–362.

See also Frerichs, G.—*Apoth. Ztg.*, Berl., 1909, v. 24, pp. 928–929; and Voswinkel, Arnold.—*Ibid.*, pp. 939–940.

The Belgian inspectors of pharmacies report that apomorphine hydrochloride has greatly improved in quality; it is found at present quite white and well crystallized; but, as it is not frequently used,

samples are often found superannuated and much deteriorated. Frequently it is amorphous.—J. d. pharm. d'Anvers, 1909, v. 65, p. 584.

See also Bull. Soc. roy. d. pharm. Brux., 1909, v. 53, p. 234.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, p. 114), in a review of recent literature relating to the use of apomorphine hydrochloride as a hypnotic, quotes Ch. J. Douglas (Therap. Gaz., 1909, v. 33, pp. 388-389), who shows that the reason for the hypnotic action of the preparation is not attributable to the morphine it contains, as good preparations contain no morphine as an impurity.

### AQUÆ.

Beringer, George M., points out that the Latin title "Aquæ" is not the equivalent of "medicated waters," and if this English name is to be continued the Latin title should be changed in the general formula.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 814.

Gane and Webster assert that the medicated waters of the various pharmacopœias are gradually diminishing in number and are less and less used by physicians, being to a large extent replaced by the use of the spirits or by more modern methods of flavoring.—Drug Topics, New York, 1909, p. 341.

An unsigned article discusses the waters of the Pharmacopœia.—Southern Pharm. J., 1908-9, v. 1, pp. 656-659.

Schamelhout, A., states that in Belgium the distilled waters of orange flowers, peppermint, and of rose are prepared from the oils (essences); in France, by distillation.—Bull. Soc. roy. d. pharm. d. Brux., 1909, v. 53, p. 9.

The committee of reference in pharmacy asserts that the processes for the Ph. Brit. aromatic waters should remain as at present, as the products are of far more agreeable flavor than those made from the oils.—Chem. & Drug. Lond., 1909, v. 74, p. 289.

Mittelbach, Wm., thinks that the official waters of anise, camphor, cinnamon, creosote, fennel, peppermint, and spearmint should all be made extemporaneously and our Pharmacopœia should most emphatically require this.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 61.

Havenhill, L. D., considers the use of talc unsatisfactory in the preparation of medicated waters, first, because the talc is very much too fine; and second, because the method requires too much attention. He suggests an alternative method.—Proc. Kansas Pharm. Ass., 1909, p. 61.

Dieterich and Mix, in a discussion on the valuation of galenical preparations, enumerate the determinable requirements for the several Ph. Germ. IV, and some unofficial, waters.—Pharm. Zentralh., 1909, v. 50, p. 726.

Dieterich, Karl, points out that for determining the quality of aromatic waters the color, odor, and taste of the water is important. If

desired the specific gravity might be determined, also the approximate amount of volatile oil present might be determined by a process of salting out.—*Ibid.*, p. 540.

### AQUA.

Hunt, Reid, believes that the description of water might more properly be placed in the Appendix of the Pharmacopœia.—*Tr. Am. M. Ass. Sec. Pharm. and Therap.* 1909, p. 11.

Klut, Hartwig, discusses the interpretation of the analytical findings in chemical examinations of water; considering more particularly the presence of salts of alkalies and of metals.—*Ber. d. pharm. Gesellsch., Berl.*, 1909, v. 19, pp. 140–166.

Blacher, Koerber, and Jacoby discuss the systematic rapid analysis of samples of water and outline their methods for the rapid analysis of water used for technical purposes.—*Ztschr. f. ang. Chem.*, 1909, v. 22, pp. 967–974.

Chamot and Pratt present a study of the phenolsulphonic acid method for the determination of nitrates in water.—*J. Am. Chem. Soc.*, 1909, v. 31, pp. 922–928.

Frankforter, Walker, and Wilhoit outline a method for the colorimetric determination of dissolved oxygen in water.—*Ibid.*, pp. 35–43.

Wolters, C., describes and illustrates an efficient filter for removing micro-organisms from the ordinary water supply.—*Ztschr. f. ang. Chem.*, 1909, v. 22, pp. 865–867.

Toplis, William George, discusses the progress of the purification of drinking water in Philadelphia.—*Am. J. Pharm., Phila.*, 1909, v. 81, pp. 220–227.

Additional references on the chemistry of water will be found in *Chem. Abstr. Am. Chem. Soc. and Exp. Sta. Rec.*

### AQUA AMMONIÆ.

v. Lippmann, Edmund O., discusses the origin of the word "ammonia" and reviews much of the literature relating to the origin and use of ammonia and salts of ammonia.—*Chem. Ztg., Cöthen*, 1909, v. 33, pp. 117–118. See also pp. 49 and 529; and *Drug Topics*, New York, 1909, v. 24, p. 294.

Beringer, George M., thinks that aqua ammoniæ and aqua ammoniæ fortior should be transferred to "Liquors," as chemical solutions, more properly classed there.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 814.

Caldwell, Paul, points out that two strengths of ammonia water are misleading to the pharmacist at times. As there is no safe and extemporaneous way of assay, there is likelihood of confounding the two.—*Bull. Pharm.*, 1909, v. 23, p. 115.

Hilgenstock, R. W., discusses and illustrates the development of the ammonia industry in gas works during the last 50 years.—*Chem. Eng.*, 1909, v. 10, pp. 77-83.

Frerichs, F. W., in a patent specification outlines a method for the manufacture of ammonia from volatile ammonium compounds.—*J. Soc. Chem. Ind.*, 1909, v. 28, p. 21.

A committee of Section III, Second International Congress for the Suppression of Adulterations (Paris, 1909), suggests that the density of ammonia at  $+15^{\circ}$  C. be 0.925 corresponding to  $22^{\circ}$  B., and that it may contain traces of carbonic gas and traces of salts existing in the natural water used in its preparation, the weight of these salts should not exceed 1 gm. per liter; it may also contain traces of nitrogenized organic matter.—*Bull. sc. pharmacol. Par.*, 1909, v. 16, p. 424.

Schamelhout, A., states that such a product is too impure to be considered as officinal.—*Bull. Soc. roy. d. pharm. Brux.*, 1909, v. 53, p. 180.

Umney, J. C., asserts that the solution commented upon is one of 20 per cent strength as a minimum, having a specific gravity of 0.925, and one which, as far as he knows, is not handled in commerce, and certainly not in pharmacy, in this country.—*Chem. & Drug.*, 1909, v. 75, p. 581.

Schamelhout, A., notes that the ammonia officinal in France contains 20.18 per cent of ammonia gas; in Belgium it contains about 17 per cent.—*Bull. Soc. roy. d. pharm. Brux.*, 1909, v. 53, p. 6.

Dunlap, Renick W., recommends that in order to prevent deterioration ammonia water purchased in large carboys be transferred to either glass or rubber-stoppered bottles (the former preferred), the capacity of which should not be greater than 1 gallon, and that these be kept in a cool place.—*Rep. Ohio Dairy & Food Com.* (1909), 1910, p. 43. See also *Midl. Drug.*, 1909, v. 43, p. 356.

Dunn, John A., suggests a modification of the U. S. P. ammonia water assay.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 951.

Trescot, T. C., discusses the determination of ammonia by the official magnesium oxide method, and concludes that the results obtained should not be reported as free ammonia but should be expressed simply as ammonia obtained by distillation of the sample with magnesium oxide.—*Proc. Ass. Off. Agric. Chem.*, 1909, 26th Ann. Conv., p. 20. (*Bull. Bur. Chem. U. S. Dept. Agric.*, 1910, No. 132.)

Davis, R. O. E., discusses the determination of ammonia without a condenser, and describes and illustrates the apparatus used.—*J. Am. Chem. Soc.*, 1909, v. 31, pp. 556-558.

Pinchbeck, G., presents a further explanation of his test for pyridin in ammonia.—*Pharm. J., Lond.*, 1909, v. 28 (82), p. 315. See also *Ibid.*, p. 84.

Houghton, A. C., reports observations on the estimation of pyridin in aqua ammonia.—*J. Ind. Eng. Chem.*, 1909, v. 1, pp. 698-700.

Vigreux, Henri, describes and illustrates an apparatus for the estimation of ammonia.—Bull. Soc. chim., Par., 1909, v. 5, pp. 574–577.

Herschkowitsch, M., discusses the oxidation of ammonia by potassium permanganate and the influence of ammonium salts on the same.—Ztschr. f. physik. Chem., 1908–9, v. 65, pp. 93–96.

Rupert, Frank F., reports observations on the system ammonia and water, and discusses the solid hydrates of ammonia.—J. Am. Chem. Soc., 1909, v. 31, pp. 866–868.

Frerichs, F. W., reports observations on the purity of commercial liquefied ammonia gas and apparatus for testing it, and describes and illustrates the apparatus.—J. Ind. Eng. Chem., 1909, v. 1, pp. 362–369.

Woods, Charles D., reports 19 samples of ammonia water examined, 4 below 90 per cent, and 15 above 110 per cent of the U. S. P. standard, the range of variation permitted in the State of Maine.—Rep. Maine Agric. Exper. Sta. (1909), 1910, App., p. 182.

Ladd, E. F., reports that the ammonia water examined ranged from 56 to 189 per cent. He says that as this product easily deteriorates, there may be some pardonable excuse for loss in strength.—Proc. North Dakota Pharm. Ass., 1909, p. 69.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 7) report lead in several samples of ammonia water, which they were informed was due to the use of leaden pipes in the manufacturing plant. Volatile tarry matter occurred in a few samples. The specific gravity of commercial stronger ammonia water of reputed 0.880 strength lies between 0.879 and 0.886 usually.

The Belgian inspectors of pharmacies report that ammonia is a product the quality of which is not sufficiently watched. It frequently contains empyreumatic matters and its strength is very irregular.—J. d. pharm. d'Anvers, 1909, v. 65, p. 584.

Schamelhout, A., notes that it is very difficult to procure irreproachable ammonia. More than once he has received from very reliable houses, specializing in the sale of reagents, ammonia for analysis containing empyreumatic matters. He will be very grateful to the inspectors if they be able to better the product.—Bull. Soc. roy. d. pharm. Brux., 1909, v. 53, p. 234.

#### AQUA AMMONIÆ FORTIOR.

Gane and Webster assert that stronger ammonia water not being used medicinally, there is no reason for making it official, especially in view of its variable character. The spiritus ammoniæ which is made from it has likewise gone out of use and has been dropped from other pharmacopœias.—Drug Topics, New York, 1909, v. 24, p. 341.

Scoville, W. L., asserts that ammonia water, stronger, is difficult to keep of official strength. Freshly opened carboys were 24.2 to 27.6 per cent.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 730.

Patch, E. L., reports several carboys of ammonia water, stronger, assaying over 28 per cent.—*Ibid.*, p. 730.

#### AQUA AURANTII FLOREM.

Gane and Webster point out that, inasmuch as all the other waters are saturated solutions, there is not much logic in calling a similar orange water a "stronger" preparation. Better call the weaker *Aqua aurantii florum diluta*.—*Drug Topics*, New York, 1909, v. 24, p. 341.

Beringer, George M., thinks that there should be only one orange flower water, namely, the saturated; and the present title for the diluted water should be applied to it.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 815.

Mittelbach, Wm., asserts that the stronger rose and orange flower waters, as they come from the still, are both stable products and dilute enough for all practical purposes, and asks why make official the dilutions of these waters when they so quickly decompose and become unfit for use.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 61.

The committee of reference in pharmacy asserts that the word "yellowish" should be substituted for "greenish-yellow" in the description of orange flower water. A test for copper is to be provided.—*Chem. & Drug*, Lond., 1909, v. 74, p. 289.

The Belgian inspectors of pharmacies report that orange flower water, prepared from essences of very different quality, varies greatly in its organoleptic characters. The old hydrolate is to be preferred.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 590.

Schamelhout, A., remarks that, even when prepared with quite pure essence, this product has not the fine odor of the water prepared by distillation. The new product does not keep as well as the old.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 263.

#### AQUA CINNAMOMI.

An unsigned article discusses the preparation of *aqua cinnamomi*.—*Suedd. Apoth. Ztg.*, 1909, v. 49, p. 476.

Southall Bros. & Barclay (Rep. 1908-9, Birmingham, 1910, p. 33) report that a bottle of cinnamon water which had been distilled some little time contained numerous well-defined crystals, and as a matter of interest they were separated, dried, and examined. The melting point was quite sharp at 133° C. and the crystals gave all the characteristic actions for cinnamic acids.

#### AQUA DESTILLATA.

Dunlap, Renick W., strongly condemns the practice of certain pharmacists who are frequently reported to be using hydrant or well water in cases where distilled water is required by the U. S. P.—

Rep. Ohio Dairy & Food Com. (1909), 1910, p. 42. See also Midl. Drug. 1909, v. 43, p. 356.

The committee of reference in pharmacy submits characters and tests for aqua destillata.—Chem. & Drug. Lond., 1909, v. 74, p. 289.

"H. M." calls attention to a simple test for detecting the presence of copper in distilled water by passing 5 or 6 liters of the suspected water through a pledget of cotton.—Pharm. Zentralh., 1909, v. 50, p. 964.

#### **AQUA HAMAMELIDIS.**

Beringer, George M., thinks that aqua hamamelidis is a questionable title for a preparation containing 15 per cent by volume of official alcohol.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 815. See also under Hamamelidis.

#### **AQUA HYDROGENII DIOXIDI.**

Beringer, George M., thinks that the English name "solution of hydrogen dioxide" is certainly out of place. It should be transferred to "Liquors." It is difficult to understand an official classification that excludes "lime water" and "lead water," yet includes these in the waters.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 814.

Schamelhout, A., notes that the French solution of peroxide of hydrogen is of 12 volume strength, and the Belgian 10 volumes.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 80.

A committee of Section III, Second International Congress for the Suppression of Adulterations (Paris, 1909), recommends a strength of 10 volumes actual oxygen measured at 0° under a pressure of 760 mm. It may be slightly acid; this acidity expressed in terms of sulphuric acid and determined in the presence of phenolphthalein as an indicator should not exceed 0.60 gm. per liter. It may contain a certain quantity of soluble substances not exceeding 0.25 per cent by weight. It should be absolutely free from arsenic and toxic impurities.—Bull. sc. pharmacol. Par., 1909, v. 16, p. 425.

Schamelhout, A., says that this product might be considered officinal. The Ph. Belg. III tolerates an acidity, which, expressed as sulphuric acid, corresponds to 0.98 gm. per liter. It does not establish the absence of arsenic.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 182.

Dunlap, Renick W., suggests that when solution of hydrogen dioxide is purchased in large containers it should be transferred to smaller (preferably dark) bottles and kept in a cool place. Otherwise by frequent agitation and exposure to the air deterioration is hastened.—Rep. Ohio Dairy & Food Com. (1909), 1910, p. 42. See also Midl. Drug., 1909, v. 43, p. 355.

Prinz, Hermann, recommends the admission of perhydrol to the U. S. P. He asserts that it is free from acid, may be mixed with

water in all proportions, and for dental purposes is far superior to the concentrated ethereal solution of hydrogen dioxide and is comparatively free from danger.—J. Am. M. Ass. 1909, v. 53, p. 796.

Reisenfeld and Reinhold report observations on the anodic formation of hydrogen dioxide.—Ber. d. deutsch. chem. Gesellsch., Berl., 1909, v. 42, pp. 2977–2981.

An unsigned article discusses the valuation of hydrogen dioxide, and points out that decomposition may be effected in a nitrometer and the volume of oxygen liberated estimated in this way.—Pharm. J., Lond., 1909, v. 29 (83), p. 239.

Waller, Elwyn, outlines a process devised by him for the determination of acetanilide in solution of hydrogen dioxide.—J. Ind. Eng. Chem., 1909, v. 1, p. 262.

Endemann, H., discusses the determination of the acids contained in solutions of hydrogen dioxide.—Ztschr. f. ang. Chem., 1909, v. 22, pp. 673–674.

The committee on adulteration points out that the presence of acetanilide as a preservative in peroxide of hydrogen is arousing a great deal of controversy. That the substance is being used has been brought to light since the advent of the national law.—Proc. Maryland Pharm. Ass., 1909, p. 74.

Dohme and Engelhardt point out that while the addition of acetanilide to hydrogen peroxide preserves it very well, after a comparatively short time a marked odor of nitro-benzol develops.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 715.

The Belgian inspectors of pharmacies say that this product is so unstable that it may be found in all strengths; contact with organic matter may be avoided by coating the stoppers with paraffin for transportation or by keeping the bottles upright. Protection of the bottles from the light is frequently forgotten.—J. d. pharm. d'Anvers, 1909, v. 65, p. 586.

*Table showing reported results of examination of solution of hydrogen dioxide.*

| Reporters.                  | Samples—  |           | References.   |
|-----------------------------|-----------|-----------|---|
|                             | Examined. | Rejected. |   |
| Hill, Edward C. ....        | 11        | 6         | Bull. Colorado Bd. Health, 1909, v. 9, No. 1, p. 2.       |
| Street, John Phillips ..... | 32        | 11        | Rep. Connecticut Agric. Exper. Sta. (1909), 1910, p. 267. |
| Sayre and Ziefle .....      | 1         | 1         | Bull. Kansas Bd. Health, 1909, v. 5, D. A., 16–23.        |
| Scovell, M. A. ....         | 1         | 1         | Rep. Kentucky Agric. Exper. Sta. (1908–9), 1910, p. 7.    |
| Army, H. V. ....            | 3         | 2         | Proc. Ohio Pharm. Ass., 1909, p. 67.                      |
| Dunlap, Benick W. ....      | 2         | 1         | Rep. Ohio Dairy and Food Com., 1909, p. 60.               |



Brichta, Rudolf, discusses the use of peroxides and the per-salts in medicine, and concludes that they are destined to play an important part in therapy.—*Pharm. Post*, Wien, 1909, v. 42, p. 866.

Croner, Fritz, discusses the disinfection value of hydrogen dioxide under various chemical and physical conditions, and points out that solid hydrogen dioxide preparations that are readily soluble in water would prove to be useful preparations.—*Proc. VIIth Internat. Congress App. Chem.*—Sec. VIIIA.—*Hygiene and Med. Chem.*, 1909, Lond. 1910, pp. 120–124.

Kühl, Hugo, reports finding that 0.3 per cent of solution of hydrogen dioxide added to decomposing urine practically sterilized the same.—*Apoth. Ztg.*, Berl., 1909, v. 24, p. 177.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 281–285) reviews some of the recent literature relating to the use of hydrogen dioxide, and points out that this remedy has a fairly reliable action in suppressing the troublesome symptoms which accompany hay fever.

Additional references, on the chemistry, pharmacology, and uses of solution of hydrogen dioxide will be found in *Chem. Abstr.*, *Am. Chem. Soc.*, *Index Medicus* and *J. Am. M. Ass.*

#### AQUA LAUROCERASI.

Weitbrecht, W., reports a systematic study of the deterioration of aqua laurocerasi and shows that an official preparation will deteriorate materially in the course of six months.—*Schweiz. Wehnschr. f. Chem. u. Pharm.*, Zürich, 1909, v. 47, pp. 461–462.

Siegfried, K., reviews some of the criticisms made recently on the Ph. Helv. IV requirements for aqua laurocerasi, and concludes that they are correct and readily complied with.—*Ibid.*, pp. 541–549. See also p. 147.

Patch, E. L., reports four lots of cherry laurel water free from HCN, three lots had a trace only, and one lot 0.059 gm. in 100 cc.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 732.

#### AQUA ROSÆ.

Mittelbach, Wm., asserts that the stronger rose and orange flower waters are dilute enough for all practical purposes, and asks why make official the dilutions of these waters.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 61.

Caldwell, Paul, asserts that stronger rose water is a misnomer. No method of assay is given, and the pharmacist must take the wholesaler's word for the merit of the solution.—*Bull. Pharm.*, 1909, v. 23, p. 115.

Biersach, Adolph, outlines a new method for making rose water by dissolving oil of rose in hot distilled water.—*Ibid.*, p. 73

Havenhill, L. D., reports the stronger rose water of the trade as being frequently of inferior quality; the best of it does not produce a rose water which is in any way superior to one made by a method which he proposes.—Proc. Kansas Pharm. Ass., 1909, p. 61.

Mittelbach, Wm., thinks the formula for ointment of rose water very satisfactory.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 817.

#### AGUA SEDATIVA N. F.

Diehl, C. L., reports, from the committee on N. F., the opinion that aqua sedativa should never have been termed "aqua;" it is a lotion, and the dosage should be eliminated. He also recommends that the word "codex" be deleted after "Lotio ammoniæ camphorata."—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1060.

Schamelhout, A., states that the sedative water of the Ph. Fr. V is prepared after the proportions of the old [Belgian] pharmacopœia. It is to be noted that ordinary ammonia and distilled water are used; it should be dispensed unfiltered.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 57.

#### ARGENTI CYANIDUM.

Riedel's Berichte (1909, pp. xxx-xxxi) presents descriptive monographs, with tests for silver acetate, silver cyanide, silver oxide, and silver sulphate.

#### ARGENTI NITRAS.

King, Roscoe, W., describes a new method for the accurate estimation of silver in the presence of free nitric acid, using hydrated starch as indicator.—Merck's Rep., 1909, v. 18, pp. 57-58.

Gooch and Bosworth describe the gravimetric determination of silver as the chromate.—Chem. News, Lond., 1909, v. 100, pp. 50-51.

The Belgian inspectors of pharmacies report that silver nitrate fused in crayons contains very variable proportions, but generally quite high of potassium nitrate (30 and even 50 per cent); it is, however, easy to verify its strength.—J. d. pharm. d'Anvers, 1909, v. 65, p. 585. See also Bull. Soc. roy. d. pharm. Brux., 1909, v. 53, p. 235.

Harbert, J. P., discusses the use of silver nitrate in ophthalmic therapeutics, and states that it may be thought of in all purulent eye troubles and, as a rule, the more purulent the discharge the greater is the indication for its use.—Eclectic M. J., Cincin., 1909, v. 69, pp. 421-423.

#### NONOFFICIAL SALTS OF SILVER.

Prinz, Hermann, recommends that either protargol or argyrol be admitted to the U. S. P., the selection being left to the discretion of the proper subcommittee of the committee of revision.—J. Am. M. Ass., 1909, v. 53, p. 796.

Thomann, J., reports a sample of argentum proteinicum that complied with the Ph. Helv. IV requirements, but contained only 4.4 per cent of silver.—Schweiz. Wchnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, p. 323.

Sensburg, L., in a German patent specification, outlines a process for obtaining preparations containing colloidal silver or silver oxide by treating aqueous solutions of silver salts with the alkaline solutions of such tannin substances as yield protocatechuic acid and phloroglucinol when fused with potassium hydroxide.—J. Soc. Chem. Ind., 1909, v. 28, p. 491.

The council on pharmacy and chemistry publishes a report (majority and minority) on collargol.—J. Am. M. Ass., 1909, v. 52, pp. 862–876. See also editorial, *Ibid.*, p. 893; and note on p. 903.

An unsigned review calls attention to several recent communications on the use of the new silver salts as compared with silver nitrate in the treatment of ophthalmia in new-born children.—Therap. Gaz., 1909, v. 33, pp. 125–127.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 115–119) reviews some of the recent literature relating to the use of unofficial silver salts.

Additional references on the chemistry, pharmacology, and uses of silver salts will be found in Chem. Abstr. Am. Chem. Soc., Index Medicus, and J. Am. M. Ass.

#### ARGENTI NITRAS MITIGATUS.

Wood (C. A.), Jackson, Schneideman, and Davis recommend that mitigated silver nitrate be dropped from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 793.

Schamelhout, A., notes that the Ph. Fr. V includes, under the name of mitigated crayons of silver nitrate, products containing a half, a third, or a fourth of their weight in silver nitrate. The unmitigated crayons are the same in France as in Belgium.—Bull. Soc. roy. d. pharm. Brux., 1909, v. 53, p. 9.

#### ARGENTI OXIDUM.

Riedel's Berichte (Berlin, 1909, p. xxx) presents a monograph on silver oxide, including an enumeration of its properties and a number of tests.

The committee of reference in pharmacy believes that silver oxide should be prepared "by precipitation of silver nitrate with a caustic alkali," and state that the weight of silver left after heating the oxide should be introduced as a quantitative test.—Chem. & Drug., Lond., 1909, v. 74, p. 290.

## ARNICA.

Minton, P. I., points out that one of the popular synonyms for both arnica and aconite is wolfsbane, and suggests that this is an opening for dangerous mistakes.—Bull. Pharm., 1909, v. 23, p. 344.

Rusby, H. H., thinks that it should be experimentally and definitely decided whether arnica is superior when the involucre and receptacles are excluded and only the florets used. The definition should specify the requirement accordingly.—Midl. Drug., 1909, v. 43, p. 683. See also Pharm. Era, 1909, v. 42, p. 633.

Kebler, L. F., reports a shipment of arnica flowers which was spurious. The exact source of the product is not known except that it is botanically a composite.—Am. J. Pharm., Phila., 1909, v. 81, p. 74.

Webb, E. A., in discussing the adulteration of arnica, calls attention to the fact that in Switzerland arnica grows in company with the plant *Senecio doronicum*, and that the common adulterant of arnica root will probably be found to be the root of this plant.—Pharm. J., Lond., 1909, v. 29 (83), p. 656.

Kline, C. M., reports on a sample of arnica flowers adulterated with inula flowers.—Proc. N. W. D. A., 1909, p. 127.

Cook, E. Fullerton, reports that the maceration process, directed in the making of tincture of arnica, seems to be both unnecessary and undesirable. He thinks it is very desirable that the 1890 process in which percolation was used be restored.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1001.

Schamelhout, A., notes that tincture of arnica is 20 per cent in France and 10 per cent in Belgium.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 81.

Sayre and Zieffle report eight samples of tincture of arnica examined, four of which were below standard.—Bull. Kansas Bd. Health, 1909, v. 5, D. A. 16-23.

Hill, Edward C., reports two samples of tincture of arnica examined; one of which was not up to standard.—Bull. Colorado Bd. Health, 1909, v. 9, No. 1, p. 2.

An editorial (J. Am. Inst. Homœop., 1909, v. 1, p. 579) comments on the use of arnica internally and externally as an antiseptic and points out that surgeons are neglecting too much the facts published long ago concerning the curative action of such great remedies as arnica and calendula, locally and internally used.

Abbott, Solon, asserts that arnica is indicated in cases of rheumatism, accompanied by tearing pain, soreness, numbness, and swelling.—J. Therap. & Dietet., Boston, 1908-9, v. 3, p. 204.

**ARSENI IODIDUM.**

The committee of reference in pharmacy asserts that the words "in crystalline masses" should be deleted, as arsenious iodide in this form is of varying composition. As the solution in water is always acid this is to be provided for.—Chem. & Drug. Lond., 1909, v. 74, p. 290.

**ARSENI TRIOXIDUM.**

Baxter and Coffin report on their experimental work in connection with the revision of the atomic weight of arsenic.—J. Am. Chem. Soc., 1909, v. 31, pp. 297–309.

The committee of reference in pharmacy suggests that the formula for acidum arseniosum should be  $As_2O_3$ , not  $As_4O_6$ .—Chem. & Drug., Lond., 1909, v. 74, p. 288.

A committee of Section III, Second International Congress for the Suppression of Adulterations (Paris, 1909), suggests that traces of antimony, of arsenic sulphide, and of moisture be tolerated in arsenious acid (assay on 2 gm.).—Bull. sc. pharmacol., Par., 1909, v. 16, p. 423.

Schamelhout, A., states that the Ph. Belg. III likewise requires 99 per cent of arsenous anhydride. The officinal product should not contain arsenic sulphide nor impurities fixed or insoluble in ammonia.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 178.

Denigès, G., describes a microchemical test for arsenic.—Pharm. J., Lond., 1909, v. 28 (82), p. 868. See also Proc. VIIth Internat. Congress App. Chem., Sec. VIIIb, Pharmacy, 1909, London, 1910, pp. 61–65.

Hérissey, M., describes a new micro-chemical method for detecting arsenic and phosphorus in forensic medicine.—Chem. & Drug., Lond., 1909, v. 74, p. 876.

Cahen and Morgan report observations on the estimation of arsenic in organic compounds.—J. Chem. Soc., Lond., 1909, v. 95, pp. 1477–1482.

Covelli, E., outlines an electrolytic method for the determination of arsenous and arsenic acids.—Chem. Ztg., Cöthen, 1909, v. 33, p. 1209.

Havenhill, L. D., calls attention to the method of quantitative estimation of arsenic trioxide proposed by Chas. E. Caspari (Proc. Am. Pharm. Ass., 1905) which seems to be quite satisfactory.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 800.

Bachman, Gustave, reports that in the arsenic trioxide examined he found 95.3 per cent minimum and 99.27 per cent maximum.—Proc. Minnesota Pharm. Ass., 1909, p. 71.

Spencer, George W., asserts that arsenic has long been recognized as having a selective action for mucous membrane of the respiratory

and digestive tracts, and by the older therapeutists was considered a curious fact.—J. Am. Inst. Homœop., 1909, v. 1, p. 515.

Abbott, Solon, asserts that arsenicum is indicated in rheumatism with burning pain, pale swelling of the joints, great exhaustion and restlessness, worse at night.—J. Therap. & Dietet., Boston, 1908-9, v. 3, p. 204.

Boldt, H. J., discusses the use of arsenic, especially in gynæcological work. He cautions against too large and too prolonged dosage and urges the necessity for watching for untoward symptoms.—N. York M. J., 1909, v. 89, p. 369.

The editor of the "Therapeutics" column (J. Am. M. Ass., 1909, v. 53, p. 1031), asserts that while small doses of arsenic may be of value in chlorosis, its medicinal value is not comparable to that of iron or even thyroid.

Hirata, G., reports a large number of experiments to determine the action of arsenic on the pancreas of guinea pigs.—Arch. internat. d. pharmacod. et d. thérap., 1909, v. 19, pp. 371-391.

Tyrode, Maurice Vejux, discusses arsenic and its newer compounds as an illustration of progress in pharmacology and experimental therapeutics.—Boston M. & S. J., 1909, v. 161, p. 152.

#### NONOFFICIAL COMPOUNDS OF ARSENIC.

Capps, Pratt, McCrae, and Halsey recommend the admission to the U. S. P. of an arsenic preparation for hypodermic administration.—J. Am. M. Ass., 1909, v. 53, p. 792.

Martindale, W. Harrison, presents a comprehensive review of the chemistry of organic arsenic compounds.—Proc. VIIth Internat. Congress App. Chem., Sec. VIIIb, Pharmacy, 1909, London, 1910, pp. 28-48. See also Chem. & Drug., Lond., 1909, v. 75, pp. 19.

Morgan and Micklethwait call attention to some organic derivatives of arsenic and antimony.—Proc. VIIth Internat. Congress App. Chem., Sec. IVa 1, Organic Chemistry, 1909, London, 1910, p. 364. See also J. Chem. Soc., Lond., 1909, v. 95, pp. 1473-1477.

Lemaire, Paul, discusses the official (Ph. Fr. V) sodium cacodylate.—Répert. d. pharm., Par., 1909, v. 21, pp. 250-253.

A committee of the Syndicat général de la Droguerie française asks that sodium cacodylate with two or three molecules of water be recognized.—BuH. sc. pharmacol., Par., 1909, v. 16, p. 289.

Merck, E. (Darmstadt), criticizes the Ph. Fr. V statement that the official sodium cacodylate is the salt dried at +100°. He says it partially decomposes on heating to 100° and thinks it better to adopt the salt with three molecules of water of crystallization  $(\text{CH}_3)_2=\text{As} \begin{smallmatrix} \text{O} \\ \diagup \diagdown \\ \text{ONa} \end{smallmatrix} + 3\text{H}_2\text{O}$  and adds that the Ph. Helv. IV adopts the salts containing water.—*Ibid.*, p. 553.

Candussio, G., in a contribution on the chemistry of sterilization, discusses the sterilization of solutions of atoxyl and asserts that the frequently made claim that the deleterious effects of atoxyl solutions are due to decomposition caused by sterilization is not warranted, but cautions against dispensing solutions that have become yellow or discolored by exposure to light and air.—*Ztschr. d. allg. österr. Apoth.-Ver.*, Wien, 1909, v. 47, pp. 401-403.

Feigl and Rollett report a comprehensive study on the behavior of inorganic and organic arsenic preparation and their influence on the excretion of gastric ferments.—*Biochem. Ztschr.*, Berl., 1909, v. 19, pp. 156-180.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 120-127) reviews some of the recent literature relating to unofficial compounds of arsenic.

Additional references on the chemistry, pharmacology, and uses of arsenic compounds will be found in *Chem. Abstr.*, *Am. Chem. Soc.*, *Index Medicus*, and *J. Am. M. Ass.*

#### ASAFETIDA.

Rusby, H. H., asserts that the taking of a representative sample of asafetida is an unknown art. The relation of the alcoholic extract and the ash are not stated correctly in the U. S. P.—*Midl. Drug.*, 1909, v. 43, p. 688. See also *Pharm. Era*, 1909, v. 42, p. 633.

At the White Cross Congress held in Paris in October, 1909, Schamelhout offered the following modifications for asafetida, which were carried: "The preparation of asafetida (dried on lime), insoluble in boiling alcohol at 90° C., should not exceed 50 per cent. Asafetida leaves an ash residue of 20 per cent, which should not effervesce strongly with hydrochloric acid."—*Chem. & Drug.*, Lond., 1909, v. 75, p. 682.

Schamelhout, A., states that asafetida leaving 20 per cent ash at most should not give a strong effervescence with hydrochloric acid. The *Ph. Belg.* III says that when extracted with boiling 94 per cent alcohol, asafetida should leave not more than 50 per cent insoluble residue; it tolerates only 10 per cent ash.—*Bull. Soc. roy. d. pharm.*, Brux., 1909, v. 53, p. 336.

Umney, J. C., points out that the low ash and the high alcohol-solubility figures of the present *Ph. Brit.* (65 per cent soluble in spirit, ash 10 per cent) have already been the object of much criticism, being limits practically unobtainable in commerce. The U. S. P. requires solubility of 50 per cent in alcohol, as does also the German Pharmacopœia and the French. The ash percentage is somewhat higher than necessary; 15 per cent is certainly sufficiently high even for a fair commercial standard. The ash limit recorded in the *Ph. Germ.* and *Ph. Fr.* is 10 per cent.—*Chem. & Drug.*, 1909, v. 75, p. 579.

The committee of reference in pharmacy asserts that the ash in asafetida should not exceed 15 per cent, nor the substances insoluble in alcohol 50 per cent. A relaxation is necessary owing to the conditions of supply, and the umbelliferone test might be omitted as the varieties distinguished by this test do not appear on the London market.—*Ibid.*, 1909, v. 74, p. 290.

Caesar & Loretz (Geschäfts-Ber. 1909, p. 9) assert that the available asafetida continues to be unsatisfactory. They point out that a good quality of asafetida in tears should not contain more than 6 per cent of ash.

Gehe & Co. (Handelsbericht, 1909, p. 49) point out that, according to the decision of the board of food and drug inspection, asafetida not agreeing with the requirements of the U. S. P. will be refused admission to the United States. They point out that the better qualities of this drug, particularly isolated tears, are practically unobtainable.

Thurston, Azor, discusses the valuation of asafetida, and outlines a method for determining the ash and the solubility in alcohol. He concludes that it would be well to have powdered asafetida made official.—Merck's Rep., 1909, v. 18, pp. 201-202.

Wiley, H. W., reports that powdered asafetida is highly adulterated, and the article at best is of questionable value as a medicinal agent, as a large proportion of the active medicinal agents are volatilized in the course of drying the original material for powdering purposes.—Ann. Rep. U. S. Dept. Agric. for 1909, 1910, p. 430.

The Belgian inspectors of pharmacies say it would be useless to repeat all that has been said in earlier reports on the falsification of asafetida. It is not rare to find samples of the powder containing from 60 to 70 per cent of mineral matter.—J. d. pharm. d'Anvers, 1909, v. 65, p. 548.

*Table showing some of the figures reported for asafetida during 1909.*

| Reporters.                                    | Per cent alcohol soluble. | Per cent ash. | References.                                   |
|---|---------------------------|---------------|---|
| Patch, E. L. ....                             | 35-42                     | .....         | Proc. Am. Pharm. Ass., 1909 v. 57, p. 731.    |
| Gane, E. H. ....                              | 30.2-51                   | 21.7-53       | <i>Ibid.</i> , p. 731.                        |
| Lehn & Fink. ....                             | 34.1-61.5                 | 5.4-34.7      | Do.   |
| Dohme and Engelhardt. ....                    | .....                     | 20-36         | <i>Ibid.</i> , p. 713.                        |
| Committee on drug market (quoting Am. Drug.). | 6-15                      | .....         | <i>Ibid.</i> , p. 731.                        |
| Committee on adulteration. . .                | 20                        | 46            | Proc. Maryland Pharm. Ass., 1909, p. 72.      |
| Thurston, Azor. ....                          | 7.68-51.65                | 18.38-80.05   | Proc. Ohio Pharm. Ass., 1909, p. 50.          |
| Bernegau, L. H. ....                          | 12.06                     | 68.8          | Proc. Pennsylvania Pharm. Ass., 1909, p. 121. |
| Pearson, W. A. ....                           | 49-67.8                   | 7.6-27.7      | <i>Ibid.</i> , p. 178.                        |
| Kline, C. M. ....                             | 69.96                     | 39.95         | Proc. N. W. D. A., 1909, p. 127.              |
| Evans Sons Lescher & Webb .                   | 36.3-77.4                 | 3-42.85       | Analytical Notes, 1909, p. 11.                |



Vanderkleed, C. E., asks how did such samples pass through our ports of entry, regardless of troubles in Turkish provinces.—Proc. Pennsylvania Pharm. Ass., 1909, p. 121.

Cook, E. Fullerton, reports that the selection of drug of good quality is important in making tincture of asafetida. The process is satisfactory.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1001.

Schamelhout, A., notes that in France tincture of asafetida is prepared with 20 gm. of asafetida per 100 gm. of 60 per cent alcohol; in Belgium, 20 per 90 gm.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 81.

The Belgian inspectors of pharmacies report that tincture of asafetida varies the more by reason of the considerable differences in the quality of the commercial gums. They constantly find it with only 3 to 5 per cent of dry residue. It is indispensable to ascertain whether the asafetida responds to the pharmacopœial requirements, if one would save himself the trouble of making many macerations to secure the desired extract content (8 per cent).—J. d. pharm. d'Anvers, 1909, v. 65, p. 590.

Schamelhout, A., remarks that if the tears be employed a product conforming to the pharmacopœia will be obtained.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 264.

Lehn & Fink (Annual Report for 1909, pp. 28-29) outline a method for determining the amount of resin in pills of asafetida.

#### ASPIDIUM.

Rusby, H. H., thinks that *Dryopteris marginalis* should be dropped as a permissible source of aspidium and the description thus made more exclusive.—Midl. Drug. 1909, v. 43, p. 688. See also Pharm. Era, 1909, v. 42, p. 633.

Dunn, John A., asserts that the oleoresin yielded by male fern, by the U. S. P. acetone method, contains so much undesirable extractive that he found it necessary to purify it by dissolving it in ether.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 949.

Caesar & Loretz (Geschäfts-Ber. 1909, pp. 84-85) describe their method for the assay of extract (oleoresin) of aspidium.

Vanderkleed, C. E., reports one assay of male fern, 10.33 per cent oleoresin; above standard.—Proc. Pennsylvania Pharm. Ass., 1909, p. 129.

The Belgian inspectors of pharmacies state that the powder of male fern, little employed as such, is often superannuated and has completely lost its green color.—J. d. pharm. d'Anvers, 1909, v. 65, p. 550.

An unsigned abstract (Le Scalpel, 1908, p. 359) discusses the treatment of tænia by male fern and gives several formulas.—Ann. d. pharm., Louvain, 1909, v. 15, p. 22.

## ATROPINA.

The committee of reference in pharmacy recommends that the present source of atropine be changed to "*Atropa belladonna* and other plants of the same natural order;" as much of the alkaloid is at present manufactured from *scopola* rhizome.—Chem. & Drug., Lond., 1909, v. 74, p. 290.

Gilling, Charles, comments on some of the statements made by Sharp regarding the relationship of cocaine to atropine, and points out that the statement that atropine has not as yet been directly synthesized is misleading. He discusses the synthesis of tropidine and the conversion of tropidine into tropine, also discusses the constitution of atropine, the synthesis of ecgonine and the synthesis of cocaine.—Pharm. J., Lond., v. 28 (82), pp. 855-856.

Merck, E. (Darmstadt), states that whereas according to the Ph. Fr. V atropine is soluble in 50 parts of petroleum ether, it is, on the contrary, nearly insoluble; in confirmation he cites Hager's *Pharmaceutische Praxis* and Schmidt's *Pharmaceutische Chemie*.

With reference to the Ph. Fr. V statement that atropine sulphate is efflorescent, he says that, according to his observations, it is not efflorescent.—Bull. sc. Pharmacol. Par., 1909, v. 16, p. 545.

Kreis, H., reports that one sample of atropine sulphate examined by him consisted of practically pure hyoscyamine sulphate.—Schweiz. Wehnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, p. 397.

Wood (C. A.), Jackson, Schneideman, and Davis, recommend that oleate of atropine be dropped from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 793.

Mittelbach, William, asserts that the use of alcohol in oleate of atropine is not necessary. Neither is there a reason for the presence of olive oil.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 816.

Wilks, Samuel, asserts that atropine is not as manageable as the crude drug for internal use. As a local application for the eye it is, of course, invaluable.—Folia. Therap., Lond., 1909, v. 3, p. 102.

Harbert, J. P., places atropine at the head of the list of local remedies to be used in the eye. He believes that its usefulness entitles it to such consideration.—Eclectic M. J., Cincin., 1909, v. 69, p. 31 ff.

Fearn, John, discusses the use of atropine as a cystic soother, and illustrates its action by the report of one case.—*Ibid.*, pp. 162-163.

Selby, Clarence D., reports a case of atropine poisoning from taking a left-over prescription ordered two years previously, and urges the necessity for prescribing only so much medicine as may be needed at the time.—J. Am. M. Ass., 1909, v. 52, p. 399.

Dixon, W. E., ridicules the use of atropine either to stop the secretion of milk or to allay the sensation of griping in the intestines.—Brit. M. J., 1909, v. 2, p. 540.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 137-138) quotes Von Terray, who describes a method of treating bronchical asthma by the administration of atropine sulphate in the form of pills.

Additional references on the chemistry, pharmacology, and use of atropine will be found in Chem. Abstr. Am. Chem. Soc., Index Medicus, and J. Am. M. Ass.

#### **AURANTII AMARI CORTEX.**

Cook, E. Fullerton, reports that a sample of tincture of bitter orange peel, when first made was slightly cloudy, and, after standing a year, contains considerable precipitate of a brownish green color.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1001.

Schamelhout, A., notes that the French tincture of bitter orange peel is prepared of 20 per cent strength, as is the Belgian; but with 80 per cent alcohol in place of 60 per cent.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 83.

Goris and Fluteaux contribute a study on a deposit in a tincture of bitter orange peel. They recommend that this tincture be prepared with 80 per cent alcohol and kept well stoppered, to prevent evaporation.—Bull. sc. pharmacol., Par., 1909, v. 16, pp. 103-106.

The Belgian inspectors of pharmacies report that the tincture of orange peel is often too weak in extractive residue.—J. d. pharm. d'Anvers, 1909, v. 65, p. 590.

Schamelhout, A., remarks that the tincture should be prepared from the peel deprived of parenchyma.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 263.

#### **AURANTII DULCIS CORTEX.**

Cook, E. Fullerton, thinks that tincture of sweet orange peel, U. S. P., is an excellent preparation and does not quickly lose its delicacy of flavor.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1001.

Boa, Peter, discusses the official preparations of orange and lemon, and presents a number of formulas which he believes to be improvements on those now included in the Ph. Brit.—Pharm. J., Lond., 1909, v. 28 (82), pp. 294-295. See also Brit. & Col. Drug., 1909, v. 55, pp. 178-179.

Beringer and Beringer think the official method for the preparation of sirup of orange is destructive of the fine aroma of the tincture of sweet orange peel and leaves with the magnesium carbonate a large proportion of the flavor. They suggest an improved formula.—Proc. New Jersey Pharm. Ass., 1909, pp. 89-90.

**AURI ET SODII CHLORIDUM.**

Vanderkleed, C. E., says the continued reporting of samples of gold and sodium chloride below the U. S. P. requirement for gold strength has apparently eliminated this difficulty. During the past year no sample was found to contain less than 30 per cent gold.—Proc. Pennsylvania Pharm. Ass., 1909, p. 124.

Boldt, H. J., declares that scanty menstruation, associated with intense ovarian dysmenorrhœa, without palpable lesion in the pelvic organs, is sometimes relieved by a combination of gold and sodium chloride with cannabis indica and gentian. He has also found a solution of gold and arsenic bromide to be useful.—N. York M. J., 1909, v. 89, p. 370.

**BALSAMUM PERUVIANUM.**

Frazier, Arthur Hugh, in a recent consular report, states that the term balsam of Peru is a misnomer, being a survival of the times when the products of the Spanish colonial coast were assembled at Callao, Peru, for shipment to Europe.—Am. Druggist, N. Y., 1909, v. 55, p. 370.

An abstract outlines the method employed in San Salvador for the production of balsam of Peru.—Tropenflanzer, 1909, v. 13, pp. 591–592.

Rusby, H. H., asserts that no man in the world can identify balsam of Peru properly, simply because no authentic sample has ever been gathered by a botanist.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 188. Also Pharm. Era, 1909, v. 42, p. 633.

Caesar & Loretz (Geschäfts-Ber. 1909, pp. 73–74) present a monograph on balsam of Peru and enumerate the several tests with which this drug should comply. They give the specific gravity as varying from 1.140 to 1.153 at 15° C. and compare the specific gravities of 8 of the leading pharmacopœias.

The committee of reference in pharmacy asserts that the lime test should be omitted for balsam of Peru, and that the specific gravity should be narrowed to 1.140 to 1.150; that the balsam should be stated to be soluble in absolute alcohol, in chloroform, and in glacial acetic acid. An improved form of cinnamein determination is described.—Chem. & Drug., Lond., 1909, v. 74, p. 290.

Hartwich and Jama discuss and describe quino-quino balsam obtained from *Myroxylon balsamum* L., and evidently closely related to balsam of tolu and balsam of Peru.—Schweiz. Wehnschr. f. Chem. u. Pharm., Zurich, 1909, v. 47, pp. 625–630, 641–646.

Kebler, L. F., asserts that in the past imitation balsam of Peru has been largely supplied when balsam of Peru was ordered.—Am. J. Pharm., Phila., 1909, v. 81, p. 75.

An unsigned note (Boll. chim. farm. Milan, 1909, v. 48, p. 756) comments on an artificial Peru balsam introduced into Italy which it is difficult to distinguish from the genuine and suggests a method for their differentiation.

Heiduschka and Rheinburger discuss the use of the thermometric bromine number test for balsam of Peru, and report a number of observations showing the rise of temperature given by several official substances and by mixtures of these substances.—Pharm. Zentralh., 1909, v. 50, pp. 213–214.

Caesar & Loretz (Geschäfts-Ber. 1909, p. 10) assert that the nitric acid test continues to give them satisfactory results and that all of the genuine balsam of Peru handled by them readily complies with the tests of cinnamein content, ester number and other requirements.

The Belgian inspectors of pharmacies state that balsam of Peru is always subject to falsification. Perugen and other artificial preparations, mixtures of cinnameine with different resins, are substituted for it.—J. d. pharm. d'Anvers, 1909, v. 65, p. 548.

Patch, E. L., reports 56.8 to 58 per cent cinnamein in balsam of Peru.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 731.

Gane, E. H., reports samples with specific gravity, 1.13 to 1.51; cinnamein, 56 to 66.7 per cent.—*Ibid.*, p. 731.

Clessler reports that in 4 out of 7 samples of Peruvian balsam the limits were exceeded; one contained over 61 per cent of cinnamein.—Suedd. Apoth. Ztg., 1909, v. 49, p. 51.

#### BALSAMUM TOLUTANUM.

Rusby, H. H., calls attention to the difficulty of sampling balsam of Tolu and points out that considerable care is necessary.—Midl. Drug. 1909, v. 43, p. 688. Also Pharm. Era, 1909, v. 42, p. 633.

The Second International Congress for the Suppression of Adulterations (Paris, 1909), considered as a definition for tolu balsam: The balsam of tolu should be composed solely of the thickened juice secured by incision of the bark of *Toluidifera balsamum* L. (Leguminosæ); its characters are also given. A note states that while certain pharmacopœias give the saponification and acidity indexes, the verifications made by the committee are not concordant; the methods employed in obtaining them should be stated.—Bull. sc. pharmacol. Par. 1909, v. 16, p. 355.

Schamelhout, A., notes that some of the pharmacopœias indicate the saponification and acidity indexes. It would be well to propose to the Congress the study of certain methods of control. The figures given by the Ph. Belg. are saponification 154 to 190; acidity, 112 to 168, and ether, 22 to 79; with precise indication as to the method

employed in obtaining them. The boiling point of the petroleum ether employed in the detection of colophony should be indicated.—Bull. Soc. roy. d. pharm. Brux., 1909, v. 53, p. 171.

Fleissig discusses the Ph. Helv. IV requirements for balsam of tolu, and the necessary procedures for determining the acid and saponification numbers.—Schweiz. Wchnschr. f. Chem. u. Pharm., Zurich, 1909, v. 47, pp. 365–366.

Schamelhout, A., notes that, in the Ph. Fr. V, 25 gm. of balsam of tolu are employed for 1,400 gm. of the sirup; in Belgium this quantity of balsam is used for the preparation of 1,000 gm. of sirup.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 77.

Schaer, Ed., reports a pharmacognostic study of myrocarpus-balsam from Brazil (Cabureiba Balsam, of Piso; Baume du Pérou en coques, of Guibourt), and concludes that this balsam has intermediary properties between balsam of tolu and balsam of Peru. Cinnamic acid was not found, though the contained benzoic acid was found to have a melting point of from 3° to 4° higher than that of normal pure benzoic acid.—Arch. d. Pharm., 1909, v. 247, pp. 176–183.

The Belgian inspectors of pharmacies state that the observations made in a previous report might be repeated in connection with balsam of tolu, which rarely responds to the pharmacopœial indications.—J. d. pharm. d'Anvers, 1909, v. 65, p. 549.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 56) report on two shipments of tolu balsam assayed for aromatic acid: Free acid (as benzoic) 10.9 and 10.1; combined acid, 21.6 to 22.0.

Southall Bros. & Barclay (Rep. 1908–9, Birmingham, 1910, p. 18) examined 11 parcels of balsam of tolu with the very satisfactory results following: Soluble in 90 per cent alcohol, 74.40 to 92.00 per cent, average, 86.3 per cent; insoluble in 90 per cent alcohol, 0.64 to 7.04 per cent, average, 2.1; free balsamic acid, as benzoic, 7.32 to 14.98 per cent, average, 9.4; combined balsamic acid, as benzoic, 13.20 to 23.35 per cent, average, 17.9.

Cook, E. Fullerton, reports that the formula for tincture of tolu is entirely satisfactory.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1004.

Schamelhout, A., notes that in France tincture of tolu is prepared with 20 gm. of balsam of tolu per 100 gm. of 80 per cent alcohol; in Belgium the same quantity of balsam per 80 gm.—Bull. Soc. roy. d. pharm. Brux., 1909, v. 53, p. 82.

Diehl, C. L., reports from the committee on N. F. recommending the deletion of soluble tincture of tolu.

He also reports recommending the deletion of ethereal tincture of tolu.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1092.

**BALSAMUM TRAUMATICUM N. F.**

Taylor, Augustus Carrier, asserts that compound tincture of benzoin, U. S. P., is a simplified preparation intended to replace traumatic balsam, Turlington's balsam, Friar's balsam, and is sold as such in nine-tenths of the pharmacies. The N. F. formula for traumatic balsam should be discarded, retaining the above names as synonyms of the compound tincture of benzoin.—Pharm. Era, 1909, v. 41, p. 493.

See also Posey, H. G., Proc. Am. Pharm. Ass., 1909, v. 57, p. 983, and the recommendation by members of the Baltimore Branch.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 55.

Diehl, C. L., reports from the committee on N. F. the recommendation that traumatic balsam be dropped.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1060.

**BELLADONNÆ FOLIA.**

Borneman, John A., describes with an illustration his experiments in the cultivation of *Atropa belladonna* near Philadelphia.—Am. J. Pharm. Phila., 1909, v. 81, pp. 1-3.

Schneider, Albert, reviews the efforts made in the cultivation of belladonna in the United States, and records some of his own experiences with that plant.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 833-843. See also Pacific Pharmacist, 1909-10, v. 3, p. 192.

Francis, John M., points out that while it is possible to grow the belladonna plant in California yet under strict construction of the U. S. P. this drug, as grown, is not marketable because the Pharmacopœia permits the use only of the leaves and roots not of the tops or whole plant, and because labor is so expensive in the United States the American drug can not compete with the foreign-grown article.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 832.

MacEwan and Forrester, in discussing the variations in the activity of certain drugs, discuss the origin and use of belladonna, and the variations in the alkaloidal strength that have been noted.—Proc. VIIth Internat. Congress App. Chem., Sec. VIIIb, Pharmacy, 1909, London, 1910, pp. 84-86. Also Chem. & Drug., Lond., 1909, v. 74, p. 878.

Peters, W., gives the moisture content of belladonna as 7.14 per cent; the ash content of the air-dry drug as 12.24 per cent; and the ash content of the dried drug as 6.75 to 14.83 per cent, and the color of the resulting ash as varying from light gray to gray dark gray.—Apoth. Ztg., Berl., 1909, v. 24, p. 537.

At the Second International Congress for the Suppression of Adulterations (Paris, 1909) there was proposed as the definition of belladonna leaves: Leaves collected in the beginning of florescence, fresh or dried and preserved in a dry medium, of *Atropa belladonna*

*L. (Solanaceæ)*, and their characters given. A note is added with reference to the leaves of *Scopolia atropoides*, a commercial succedaneum, which should not be sold under the name of belladonna leaves.—Bull. sc. pharmacol. Par. 1909, v. 16, p. 352.

Schamelhout, A., points out that according to the decisions of the Brussels Conference, the dried leaf exclusively should be employed. The description of the flower should be suppressed and the minimum alkaloidal content could be indicated with profit.—Bull. Soc. roy. d. pharm. Brux., 1909, v. 53, p. 166.

The committee of reference in pharmacy points out that in view of the introduction of dried belladonna leaves and of a tincture and extract made from them but not standardized, as contained in the international agreement, it is desirable that dried belladonna leaves containing from 0.3 to 0.4 per cent of alkaloid should be made official.—Chem. & Drug. Lond., 1909, v. 74, p. 290.

Tocher, James Fowler, in commenting on the above recommendations thinks it is unsound to insert limits of values, even after the true range, mean, and variability of the proportions are found. It is more scientific to specify the strength in the various preparations from the drug.—*Ibid.*, v. 75, p. 208. Also Year-Book of Pharmacy, Lond., 1909, pp. 228–229.

Rusby, H. H., asserts that unadulterated belladonna leaves almost never fail to come up to the required standard of strength. He also reports having met with a bale of broken belladonna leaves with small particles of chopped up chestnut leaves as adulterants.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 746.

Kline, C. M., reports on 2 samples of belladonna leaves adulterated with scopolia; another sample proved to be scopolia leaves.—Proc. N. W. D. A., 1909, p. 128.

Moser, John, asserts that the leaves of *Scopolia carniolica* are largely used as an adulterant of belladonna leaves. He describes the characteristic structures of the two leaves and asserts that a cross section through the midrib quickly reveals the identity of the leaf.—Am. J. Pharm., Phila., 1909, v. 81, pp. 578–579.

Kraemer, Henry, calls attention to and illustrates some of the distinguishing characters of belladonna and scopolia.—Am. Druggist, N. Y., 1909, v. 54, p. 40.

Roberts, J. G., reports a comparative study of the alkaloidal content in belladonna leaves with stems, and the leaves without stems and midribs. The results indicate that the whole leaves with stems contain slightly more alkaloids than the leaves without stems and midribs.—Proc. Pennsylvania Pharm. Ass., 1909, p. 182.

Rusby, H. H., suggests that sufficient experiments be made to ascertain if this result is generally corroborated.—Midl. Drug., 1909, v. 43, p. 688. Also Pharm. Era, 1909, v. 42, p. 633.



Williams, J. H., reports a number of investigations to determine the alkaloidal content of belladonna fruit.—Pharm. J., Lond., 1909, v. 29 (83), p. 473.

Lyons, A. B., asserts that the presence in the mydriatic alkaloids of belladonna and allied drugs of several alkaloids differing materially in medicinal effects, makes the results of assays of comparative rather than absolute value.—Proc. VIIth Internat. Congress App. Chem., Sec. VIIIb, Pharmacy, 1909, London 1910, p. 109.

Dunn, John A., suggests a slight modification of the U. S. P. assay method for extract of belladonna root.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 952.

Caesar & Loretz (Geschäfts-Ber. 1909, p. 21) discuss the assay process of belladonna and point out that chloroform can be used to advantage for shaking out the alkaloids of belladonna and related drugs, provided precaution is taken not to allow the chloroform to decompose. See also *Ibid.*, pp. 87–88.

Kottenhoff, G., prefers the process of the Ph. Helv., for the estimation of alkaloids in belladonna extract, to that of the Ph. Belg. III, which he considers to be complicated and difficult.—Bull. Soc. roy. d. pharm. Brux., 1909, v. 53, p. 137.

Dohme and Engelhardt think the official assay method for belladonna gives very good results and is easily carried out. Keller's method gives results very close to those obtained by the official method.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 879.

Lyons, A. B., calls attention to a number of corrections that should be embodied in the official assay of belladonna leaves.—*Ibid.*, p. 803.

Gane and Webster point out that the alkaloidal value of belladonna leaves is subject to considerable variation and even with the reduction in official standards from 0.35 to 0.30 per cent it is not always possible to obtain a drug that will assay up to the U. S. P. standard.—Drug Topics, New York, 1909, v. 24, p. 180.

*Table showing some of the reported variations in the alkaloidal content of belladonna leaves.*

| Reporters.                   | Per cent of mydriatic alkaloids. |          | References.                                   |
|------------------------------|----------------------------------|----------|---|
|                              | Minimum.                         | Maximum. |   |
| Gane and Webster.....        | 0.25                             | 0.42     | Drug Topics, New York, 1909, v. 24, p. 180.   |
| Dohme and Engelhardt.....    | .11                              | +.5      | Proc. Am. Pharm. Ass., 1909, v. 57, p. 714.   |
| Amos, W. S.....              | .229                             | .327     | Proc. Kansas Pharm. Ass., 1909, p. 54.        |
| Committee on adulteration... | .25                              | .....    | Proc. Maryland Pharm. Ass., 1909, p. 73.      |
| Vanderkleed, C. E.....       | .215                             | .500     | Proc. Pennsylvania Pharm. Ass., 1909, p. 120. |
| Evans Sons Lescher & Webb .. | .25                              | .....    | Analytical Notes, 1909, p. 14.                |

Mittelbach, William, thinks the formula for belladonna plaster is an excellent one.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 816.

The committee of reference in pharmacy asserts that to conform with the international requirements Ext. belladonnæ alcoholicum should be made by percolation of the dried leaves with 70 per cent alcohol. It should be brought to the form of powder by mixing with powdered belladonna leaves and the resulting powdered extract adjusted to contain 1 per cent of alkaloid by Farr and Wright's process.—Chem. & Drug. Lond., 1909, v. 74, p. 292.

Gane, E. H., thinks the official, U. S. P., standard for extract of belladonna, 1.4 per cent, is too high.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 731.

Wiki, B., presents certain considerations on the extracts of the poisonous Solanaceæ of the Ph. Fr. V and on the estimation of their alkaloids in which he criticizes the methods of assay and the figures of the Codex.—Bull. sc. pharmacol. Par. 1909, v. 16, pp. 640–649. See also J. d. pharm. d'Anvers, 1909, v. 65, pp. 894–899.

See also comments by Düsterbehn, Apoth. Ztg., Berl., 1909, v. 24, p. 239.

Schamelhout, A., notes that while the extract of belladonna is made according to the indications of the International Conference for the Unification of the Formulæ of Heroic Medicaments, and the Ph. Fr. V gives the assay process, it does not give the alkaloidal content, which in Belgium should be 1.5 per cent.—Bull. Soc. roy. d. pharm. Brux. 1909, v. 53, p. 12.

Gane and Webster point out that an oversight in the corrections of May 1, 1907, was the failure to allow for a corresponding reduction in the strength of the official extract, and assert that a leaf assaying 0.30 will not as a rule yield an extract containing 1.4 per cent of alkaloids. They suggest that the standard for the extract be reduced to 1.2 per cent.—Drug Topics, New York, 1909, v. 24, p. 180.

André presents a note on the alkaloidal content of the divers extracts of belladonna.—J. d. pharm. et d. chim., Par., 1909, v. 30, p. 249.

Clessler reports 2 samples which yielded 1.52 and 1.88 per cent alkaloids. He thinks the official method gives results which are too high.—Suedd. Apoth. Ztg., 1909, v. 49, p. 51.

Beringer, George M., thinks that the directions (U. S. P. VIII, p. 134) for dissolving the extract in a beaker in an immiscible liquid are impractical.—Proc. Pharm. Ass., 1909, v. 57, p. 803.

Turner, Joseph L., in reporting an investigation of the decomposition of 4-year old extracts of Solanaceæ, reports a loss of alkaloids in belladonna preparations of from 3 to 69 per cent.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 79.

Gane and Webster discuss the report made by Ribaut (Bull. sc. pharmacol.) on the keeping qualities of extract of belladonna leaves, and point out that the results obtained are in direct conflict with those obtained by them and other workers in the same field. They believe that solanaceous alkaloidal extracts are among the most stable and least liable to undergo deterioration on keeping.—Drug Topics, New York, 1909, v. 24, p. 21.

The Belgian inspectors of pharmacies report that they some times found extract of belladonna which did not have the required alkaloidal strength, varying between 0.45 and 1.10 per cent.—J. d. pharm. d'Anvers, 1909, v. 65, p. 625.

See also Bull. Soc. roy. d. pharm. Brux., 1909, v. 53, p. 268.

Cook, E. Fullerton, reports that tincture of belladonna leaves, in common with most of the tinctures made from leaf drugs, soon develops a small quantity of dark-colored, finely divided precipitate.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1001.

Beringer, George M., thinks that the introduction of foliorum in the title *Tinctura Belladonnæ Foliorum* is unnecessary.—*Ibid.*, p. 819.

Caldwell, Paul, points out that belladonna ointment does not remain permanent through the summer months and needs a base that will insure its stability at all seasons. He suggests anhydrous wool-fat alone as the base. This agent acts well in ointments which have an extract as an ingredient.—Bull. Pharm., 1909, v. 23, p. 116.

Mittelbach, William, asserts that the formula for belladonna ointment is very satisfactory.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 817.

Abbott, Solon, states that belladonna is indicated in cases of rheumatism with pressing, tearing, cutting pain deep in the bones, frequently running from the affected joints along the limbs like electric shocks.—J. Therap. & Dietet., Boston, 1908-9, v. 3, p. 204.

Stephens, A. F., states that belladonna will relieve all cases of pertussis showing evidence of capillary congestion, such evidence being a dusky bloated face, bluish mucous membrane with dull facial expression.—Natl. Eclect. Med. Ass. Quart., 1909-10, v. 1, p. 125.

Harbert, J. P., states that belladonna is a powerful stimulant to capillary circulation. Remembering this, we should employ it in any eye disease where the condition of congestion is apparent.—Eclectic M. J., Cincin., 1909, v. 69, p. 650.

Wilks, Samuel, asserts that belladonna is an efficient and manageable drug, but he can not say the same of atropine which has to be given in the fraction of a grain.—Folia Therap., Lond., 1909, v. 3, p. 102.

McWalter, J. C., suggests a comprehensive investigation of the question: "Does belladonna ease the griping of cathartics?"—Chem. & Drug., Lond., 1909, v. 75, p. 420.

Additional references on the pharmacology and uses of belladonna and its alkaloids will be found in Index Medicus and J. Am. M. Ass.

### BELLADONNÆ RADIX.

Rusby, H. H., thinks that the reduction in alkaloidal requirement for belladonna root was doubtless based on the examination of adulterated samples, and the previous requirement should, therefore, be restored. He also points out that the description should be modified so as to more effectually exclude scopola roots and phytolacca.—Midl. Drug., 1909, v. 43, p. 688. Also Pharm. Era, 1909, v. 42, p. 633.

Cæsar & Loretz (Geschäfts-Ber. 1909, pp. 95-97) presents Keller's method of assay for belladonna root and point out that the Ph. Austr. permits 6 per cent, while the Ph. Helv. permits 7 per cent of ash. The U. S. P. requires 0.45 per cent of alkaloids, while the Ph. Helv. requires 0.4 per cent. See also *Ibid.*, p. 42.

Lyons, A. B., discusses the assay of fluid extract of belladonna root.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 803.

Caldwell, Paul, thinks that fluid extract of belladonna root should be dropped, as the alkaloid is used instead.—Bull. Pharm., 1909, v. 23, p. 115.

Koch, Christopher, reports the assay of 9 samples of fluid extract of belladonna leaves that were found to vary from 16 per cent below to 30 per cent above the required standard. He thinks the variation extreme and quotes a pharmaceutical chemist who thinks that a permissible variation of 10 per cent would be fair.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 745-746.

*Table showing reported variations in alkaloidal content of belladonna root.*

| Reporters.                    | Per cent of mydriatic alkaloids. |          | References.                                   |
|-------------------------------|----------------------------------|----------|---|
|                               | Minimum.                         | Maximum. |   |
| Dohme and Engelhardt.....     | 0.13                             | 0.19     | Proc. Am. Pharm. Ass., 1909, v. 57, p. 714.   |
| Gane, E. H.....               | .4                               | .6       | <i>Ibid.</i> , p. 731.                        |
| Vanderkleed, C. E.....        | .437                             | .700     | Proc. Pennsylvania Pharm. Ass., 1909, p. 129. |
| Evans Sons Lescher & Webb     | .2                               | .6       | Analytical Notes, 1909, p. 14.                |
| Southall Bros. and Barclay... | .25                              | .55      | Rep., 1908-9, Birmingham, 1910, p. 7.         |

Diekman, George C., reports three samples of belladonna liniment, examined by the eastern branch, one of which was below standard.—Rep. New York Bd. Pharm. (1909), 1910, p. 11.

Caldwell, Paul, points out that belladonna liniment has found no favor on account of its price. The ointment of belladonna serves the same purpose.—Bull. Pharm., 1909, v. 23, p. 116.

**BENZALDEHYDUM.**

Schimmel & Co. (Semi-Annual Report, April, 1909, p. 142) assert that benzaldehyde is soluble to the extent of 70:100 of 70 per cent alcohol, 0.1:100 of glycerin, 7:100 of paraffin, and in all proportions in 96 per cent alcohol and in olive oil.

Mittelbach, William, points out that benzaldehyde (artificial oil of bitter almonds) is described in the Dispensatory as being used in the preparation of essence of bitter almonds. In other words, that book recommends it as a cheap substitute for the genuine oil. The Pharmacopœia requires the use of the genuine oil of bitter almonds in making the spirit. He thinks it would be well to remove the temptation, as the very fact that it is free from prussic acid makes it useless for medicinal purposes.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 61.

Saalebach, Louis, points out that benzaldehyde has probably a more just claim to recognition as a flavoring agent, in preference to the oil of bitter almonds, than any other synthetic product, owing to the fact that the true oil contains hydrocyanic acid. When benzaldehyde is used for making an essence, it should be a substance that has been well kept, as on exposure it is readily oxidized to benzoic acid.—Proc. Pennsylvania Pharm. Ass., 1909, p. 185.

Vanderkleed, C. E., quotes Fritzsche Bros. to the effect that the regular market quality will not answer the requirements.—*Ibid.*, p. 127.

LaWall, Charles H., thinks benzaldehyde occupies a rather anomalous position, as it can not legally be used for either of the purposes for which it is presumably intended.—Proc. New Jersey Pharm. Ass., 1909, p. 102.

Denis and Dunbar discuss the determination of benzaldehyde in almond flavoring extract.—J. Ind. Eng. Chem., 1909, v. 1, pp. 256–257.

See also under *Oleum Amygdalæ Amaræ*.

**BENZINUM.**

Hunt, Reid, believes that the description of petroleum benzin might more properly be placed in the Appendix of the Pharmacopœia.—Tr. Am. M. Ass., Sec. Pharm. and Therap., 1909, p. 11.

Schamelhout, A., calls attention to the four different products mentioned by the Ph. Fr. V, in connection with the title petroleum ether: Gasoline, light petroleum, petroleum oil or mineral oil and ligroin with their several characters. The Ph. Belg. III designates under the names petroleine, petroleum ether, petroleum benzine and petroleum oil, a single product of a density between 0.64 and 0.67 which boils between 50° and 75°.—Bull. Soc. roy. d. pharm. Brux., 1909, v. 53, p. 77.

Fleissig, Paul, points out that the benzin of the Ph. Fr. V is identical with benzol.—Therap. Monatsh., Berl., 1909, v. 23, p. 275.

Düsterbehn points out that the Ph. Fr. V includes as synonyms for benzolum: Benzene, benzol, and benzinum.—Apoth. Ztg., Berl., 1909, v. 24, p. 228.

See also comments by Schamelhout, A.—Bull. Soc. roy. d. pharm. Brux., 1909, v. 53, p. 7.

Dunn, John A., has experienced considerable difficulty in preparing a purified benzin sufficiently free from substances which leave an odor in the finished preparation.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 950.

Lehn & Fink report that benzin can not be had of U. S. P. boiling point, 45° to 60° C., unless freshly fractioned. Of a typical lot of 100 cc., carefully distilled, 50 cc. came over below 40° C.; 30 cc., between 59.5° and 62° C.; 10 cc. between 62° and 75° C.—*Ibid.*, p. 731.

Hyde, Frederic S., points out the desirability of having the term gasoline or gasolene accurately defined so as to determine whether or not it is a part of the well-known petroleum ether, or an entirely separate portion of naphtha distillate; and thus establish the relations between it and the hydrocarbon fluid known as "benzene," whether inclusive or not.—J. Ind. Eng. Chem., 1909, v. 1, pp. 377-378.

An abstract (Südd. Apoth.-Ztg., 1909, No. 12) enumerates a number of serious accidents resulting from the use of petroleum benzin.—Schweiz. Wchnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, pp. 340-341.

Wichern, Heinr. (Münch. med. Wochenschr. 56, 11-13), states that poisoning by means of petroleum benzin is not uncommon, and discusses the treatment.—Jahresb. ü. Tier-Chem., 1909, Wiesb., 1910, v. 39, p. 1188.

#### BENZOINUM.

Rusby, H. H., asserts that steps should be taken to determine positively the species yielding benzoin, and at the same time scientific observations of the method of collecting should be made, so as to ascertain what is a reasonable allowance, for the presence of barks, woody tissue, and ash-yielding substance.—Pharm. Era, 1909, v. 42, p. 633.

Schamelhout, A., states that, according to the Second International Congress for the Repression of Adulteration (Paris, 1909), Siam benzoin should leave not more than 2 per cent of ash and yield not more than 50 per cent residue when treated with carbon disulphide, or 10 per cent by ether or alcohol. The Ph. Belg. III indicates only that the residue insoluble in boiling alcohol should not exceed 5 per cent.—Bull. Soc. roy. d. pharm. Brux., 1909, v. 53, p. 337.

The committee of reference in pharmacy points out that experiments show that Sumatra benzoin is preferable to Siam for making

**adepts benzoatus.** They submit a modified monograph, also characters and tests.—Chem. & Drug., Lond., 1909, v. 74, p. 290.

The committee on drug market reports that the block Sumatra article will not answer U. S. P. description of almost soluble in alcohol. Eight lots contained 0.50 to 1.10 per cent ash; 74.4 to 91.5 per cent alcohol soluble matter.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 731.

Reinitzer, Friedr., discusses the physical and chemical characteristics of Siam benzoin.—Pharm. Post, Wien, 1909, v. 42, p. 845.

See also Chem. Ztg., Cöthen, 1909, v. 33, p. 1027.

Southall Bros. & Barclay (Rep. 1908-9, Birmingham, 1910, p. 7) examined 11 parcels of Sumatra benzoin. The figures showed a slight improvement over those of recent years: Solubility in 90 per cent alcohol, 61.00 to 74.20 per cent, average, 66.4; free balsamic acids, calculated as benzoic acid, 7.28 to 10.12 per cent, average 8.60; combined balsamic acids, calculated as benzoic acid, 9.20 to 14.12 per cent, average 12.02.

The Belgian inspectors of pharmacies state that the quality of benzoin leaves something to be desired. They find much of the gum, mixed with woody and stony débris, which, exhausted with alcohol, leaves a considerable residue. The Pharmacopœia tolerates only 5 per cent of insoluble residue.—J. d. pharm. d'Anvers, 1909, v. 65, p. 549.

Cook, E. Fullerton, reports that tincture of benzoin, U. S. P., is entirely satisfactory.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1001.

Schamelhout, A., notes that in France tincture of benzoin is prepared with 20 gm. of benzoin per 100 gm. of 80 per cent alcohol; in Belgium the same quantity of benzoin per 80 gm.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 82.

The Belgian inspectors of pharmacies report that tincture of benzoin is frequently too weak and too poor in dry extract.—J. d. pharm. d'Anvers, 1909, v. 65, p. 590.

See also Bull. Soc. roy. d. pharm. Brux. 1909, v. 53, p. 263.

Cook, E. Fullerton, reports that compound tincture of benzoin, U. S. P., is entirely satisfactory.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1001.

Pinchbeck, G., points out that he has experienced difficulty in obtaining an extractive of constant weight. The reason for this is obvious when we consider the solids of the tincture, and he recommends to dry benzoin residue so as to get a constant loss in a given period.—Pharm. J., Lond., 1909, v. 28 (82), p. 85.

Cripps, Ernest C., reports some observations on the composition of compound tincture of benzoin. From his experiments he concludes that pharmacists can take the standard of 18 gm. per 100 cc. solid contents as about correct.—*Ibid.*, 1909, v. 29 (83), p. 633.

### BENZOSULPHINIDUM.

La Wall, Charles H., asserts that physicians should be consulted as to whether saccharin is permissible as a sweetening agent in certain elixirs, such as elixir of terpin hydrate, when the high alcoholic content has a tendency to throw the sugar out of solution; and, if permissible, whether its presence should be indicated in the title of the preparation so that the physician may have his attention plainly called to it.—*Boston M. & S. J.*, 1909, v. 160, p. 623.

Testoni, Giuseppe, discusses the determination of saccharin in various food products and outlines methods for determining this substance in the presence of benzoic and other organic acids.—*Ztschr. f. Unters. Nahr. u. Genussm.*, 1909, v. 18, pp. 576–587.

Genth, F. A., describes a method for confirming the presence of saccharin in foods and beverages in quantities as small as 4 mg. saccharin per liter of the solution.—*Proc. Pennsylvania Pharm. Ass.*, 1909, pp. 334–335.

Mittelbach, Wm., points out that benzosulphinidum (saccharin) is now being used to some extent in disguising the taste of castor oil, and points out that the development of color in such a mixture, after standing a while, is due to either chemical reaction or an inferior product of saccharin.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 61.

Dohme and Engelhardt suggest that the sodium salt of saccharin be made official, as it is more soluble and has nearly the same sweetening power as benzosulphinide; in fact, it is in every way preferable.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 718.

### BERBERIS.

Fussell, M. H., in recommending the deletion of berberis from the *Pharmacopœia*, asserts that it is notably valueless when compared with a preparation of *nux vomica*. It but helps to nullify any attempt at accurate medication.—*Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, p. 203.

Capps, Pratt, McCrae, and Halsey recommend the deletion of berberis from the U. S. P.—*J. Am. M. Ass.*, 1909, v. 53, p. 792.

Rusby, H. H., asserts that a large part of the berberis gathered in Oregon is derived from *Berberis nervosa*. As the relative value of the different species is quite unknown he suggests that the committee of revision have careful collections made of all of the species and to assay these both for their yellow and white alkaloid, and frame a definition in accordance with the results.—*Midl. Drug.*, 1909, v. 43, p. 688. See also *Pharm. Era*, 1909, v. 42, p. 633.

Beringer, George M., thinks that the definition of berberis is indefinite, and asks which are the "other species of berberis permissible?"—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 811.



Riedel's *Berichte* (Berlin, 1909, p. xxxii) presents monographs describing berberine hydrochloride and berberine sulphate, including an enumeration of their properties and a number of tests.

Leming, W., points out that *berberis aquifolium* is indicated in chronic and subacute eruptions on the skin, accompanied with hepatic torpor, general lassitude, and other evidences of incomplete tissue metamorphosis.—*J. Therap. & Dietet.*, Boston, 1908-9, v. 3. p. 346. Also *Electric M. J.*, Cincin., 1909, v. 69, pp. 423-424.

Howes, Pitts Edwin, asserts that *berberis aquifolium* is most useful in chronic cases of rheumatism accompanied with a skin affection of long standing, combined with torpidity of the liver.—*J. Therap. & Dietet.*, Boston, 1908-9, v. 3, p. 216.

#### BETANAPHTHOL.

Caille, E., reports observations on the variation in the solidification temperature of mixtures of betanaphthol with camphor and of betanaphthol with salol and camphor.—*Bull. Soc. sc. et méd. d. l'ouest*, Rennes, 1909, v. 18, p. 82.

Dané (*Union pharm.* Janvier, 1909) describes a new reaction for alphanaphthol which permits of its detection in betanaphthol.—*Bull. Soc. roy. d. pharm. Brux.*, 1909, v. 53, p. 138.

Heineberg and Bachmann conclude that: (1) Intestinal antiseptics interfere with peptic digestion *in vitro*; (2) betanaphthol, salicylic acid, sodium sulphite, and thymol are the most active in retarding digestion; (3) boric acid and resorcinol are the least active; (4) the uniformity in the results of their experiments would seem to warrant the inference that intestinal antiseptics interfere with digestion in the stomach and probably in the intestine.—*J. Am. M. Ass.*, 1909, v. 53, pp. 1454-1456.

#### BISMUTHI CITRAS.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 15) report that 3 of 5 samples of bismuth citrate examined contained traces of nitrate. After ignition, from 55.7 to 58.3 per cent of  $\text{Bi}_2\text{O}_3$  remained.

#### BISMUTHI OXIDUM HYDRATUM N. F.

Diehl, C. L., reports from the committee on N. F. recommending a change in title to bismuthi hydroxidum, bismuth hydroxide, and presents a formula.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1060.

Members of the Baltimore branch express the belief that hydrated oxide of bismuth should be replaced by a milk of bismuth.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 55.

Posey, H. G., asserts that hydrated oxide of bismuth is an article of commerce easily obtainable, and as the formula involves consider-

able manipulation and technique, and does not make a satisfactory "Cremor Bismuthi" when titrated with water, it should be dropped and a formula introduced for a cream or milk of bismuth.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 983.

#### BISMUTHI SUBCARBONAS.

The committee of reference in pharmacy asserts that bismuthi carbonas should yield from 89 to 91 per cent of oxide.—Chem. & Drug., Lond., 1909, v. 74, p. 290.

Havenhill, L. D., thinks that better success has been obtained with the indigo test than with the present official test for the presence of bismuth subnitrate in bismuth subcarbonate.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 800.

#### BISMUTHI SUBGALLAS.

Schamelhout, A., notes that in France bismuth subgallate must contain 56.45 per cent anhydrous bismuth oxide; in Belgium, 52 per cent.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 7.

A committee of the Syndicat général de la Droguerie française asks that the percentage of bismuth oxide in bismuth subgallate be reduced to 52 or 53 instead of 56 [56.45].—Bull. sc. pharmacol., Par., 1909, v. 16, p. 288.

Poulenc Frères state that it is practically impossible to obtain a standard above 53–54 per cent  $\text{Bi}_2\text{O}_3$ ; this, moreover, conforms with diverse foreign pharmacopœias.—*Ibid.*, p. 408.

Patch, E. L., reports 6 lots bismuth subgallate assaying 52.5 to 56 per cent  $\text{Bi}_2\text{O}_3$ .—Proc. Am. Pharm. Ass., 1909, v. 57, p. 731.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 15) report 3 batches of bismuth subgallate yielding 52.5 per cent of  $\text{Bi}_2\text{O}_3$ .

McWalter, J. C., points out that bismuthi subgallas appears to be the most useful bismuth preparation for dusting purposes. He recommends that this drug be admitted to the Ph. Brit.—Chem. & Drug., Lond., 1909, v. 74, p. 20.

#### BISMUTHI SUBNITRAS.

Wilbert, M. I., points out that the official designation for bismuth subnitrate is: Bismuthi subnitras (U. S. P. VIII); Nitras bismuthicus basicus (Ph. Ndl. IV); Bismuthum subnitricum (Ph. Helv. IV); and Subnitras bismuthicus (Ph. Svec. VIII).—Merck's Rep., 1909, v. 18, p. 207.

A committee of Section III, Second International Congress for the Suppression of Adulterations (Paris, 1909), recommends that bismuth subnitrate contain a maximum of 79 to 81 per cent  $\text{BiO}_3$ , 15.5

to 16 per cent  $N_2O_5$ , and a maximum of 5 to 6 per cent of water.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 426.

Schamelhout, A., says that this drug may be considered as officinal. A method for the detection of arsenic should be indicated as well as for the other impurities.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 184.

The committee of reference in pharmacy suggests that bismuth subnitrate be required to yield between 79 and 82 per cent of oxide, this taking the place of the sulphide test.—Chem. & Drug., Lond., 1909, v. 74, p. 290.

Schamelhout, A., notes that the bismuth subnitrate of the Ph. Fr. V should contain 76.3 per cent of anhydrous bismuth oxide; in Belgium, 79 to 82 per cent.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 7.

Poulenc Frères state that the Ph. Fr. V requirements for bismuth subnitrate, 20.7 per cent nitric acid and 76.3 per cent bismuth oxide, are difficult to realize practically in the manufacture and impossible for the proper preservation of the product. As for the rest, this composition does not conform to any of the foreign pharmacopœias.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 408.

Fleissig, Paul, points out that the Ph. Fr. V directs that bismuth subnitrate should be preserved from light.—Therap. Monatsh., Berl., 1909, v. 23, p. 275.

Dunning, H. A. B., presents some observations on the hydrolysis of bismuth subnitrate and concludes that the access of air to the bismuth mixture accelerates hydrolysis as does to a greater extent increased temperature. He thinks that the hydrated oxide of bismuth and the subcarbonate, from a pharmaceutical standpoint, at least, would be preferable compounds for use in prescription dispensing.—Drug. Circ., N. Y., 1909, v. 53, pp. 331-332.

Patch, E. L., reports 20 lots of bismuth subnitrate assaying 80 to 81.75 per cent  $Bi_2O_3$ .—Proc. Am. Pharm. Ass., 1909, v. 57, p. 731.

The Belgian inspectors of pharmacies report that the light nitrate has almost completely disappeared from the laboratories. Moreover, the carbonate is no longer found; the impurity still encountered is the oxychloride, but the proportion of oxide is always satisfactory.—J. d. pharm. d'Anvers, 1909, v. 65, p. 585.

See also Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 235.

An editorial (Lancet, 1909, v. 176, p. 562) calls attention to the work of Mercade (Arch. Gén. d. Méd.) on the toxic effects of bismuth subnitrate.

Beck, Emil G., discusses toxic effects from bismuth subnitrate, drawing a distinction between acute nitrite poisoning and the more chronic bismuth poisoning, and advising that radiographers employ some other preparation of bismuth than the nitrate for injection into

the bowels, especially if intestinal putrefaction is present.—N. York M. J., 1909, v. 89, pp. 16-22.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 143-144) in a review of recent literature bearing on the use of bismuth subnitrate, quotes Lewin who strongly condemns the internal administration of large doses of bismuth subnitrate. Lewin regards it as impossible for the nitrate components of bismuth subnitrate to have anything to do with the cause of the toxic symptoms that have been described. The poisonous effects in his opinion are due to bismuth and not to nitrite poisoning. Accordingly large doses of other bismuth preparations should not be used except with caution.

Additional references on the pharmacology and uses of bismuth subnitrate will be found in Index Medicus and J. Am. M. Ass.

#### BISMUTHI SUBSALICYLAS.

The committee of reference in pharmacy asserts that bismuthi salicylas should yield from 62 to 65 per cent of oxide, and that the free salicylic acid test should be replaced by the following: "Shake 5 grams of the salt with 50 cc. of dry ether, filter and evaporate the ethereal solution to dryness; the residue should not exceed 0.005 gm. in weight."—Chem. & Drug., Lond., 1909, v. 74, p. 290.

Seidell, Atherton, reports finding bismuth subsalicylate soluble in 10,000 parts of water, and in 625 parts of alcohol.—J. Am. Chem. Soc., 1909, v. 31, p. 1168.

Schamelhout, A., notes that in France bismuth subsalicylate should contain 61.2 per cent oxide; in Belgium, at least 53 per cent.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 7.

Harrison, J. Bristowe P., discusses the quantitative determination of free salicylic acid in bismuth salicylate.—Pharm. J., Lond., 1909, v. 29 (83), pp. 156-158. See also Year-Book of Pharmacy, Lond., 1909, pp. 303-311.

Lyon, W., discusses the testing of bismuth salicylate for salicylic acid and concludes that, until bismuth salicylate can be prepared absolutely free from salicylic acid, and a solvent found which can be applied with absolute assurance that it will not decompose in the slightest degree bismuth salicylate, it does not appear advisable to fix any exact limit to the amount of salicylic acid present. He suggests that it would be sufficient to stipulate that bismuth salicylate should not, when treated with benzol, as described, show any violet ring at the end of 15 minutes' contact.—Pharm. J., Lond., 1909, v. 28 (82), p. 3.

Friedenwald and Leitz in a report of the experiments relating to the bacterial content of the fæces, with some researches on the value of certain intestinal antiseptics, assert that betanaphthol and bismuth salicylate appear to be our most effectual intestinal antiseptic drugs in normal individuals.—Am. J. M. Sc., 1909, v. 138, pp. 653-661.

**BISMUTHUM.**

Raubenheimer, Otto, reviews the history of bismuth, discusses its use in medicine, and presents a formula for an improved cream of bismuth.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 1024–1031.

Ehrenfeld and Indra discuss the volumetric estimation of bismuth in nitric acid solutions by means of sodium phosphate, and the determination of the unused sodium phosphate by means of uranyl acetate.—*Ztschr. f. anal. Chem.*, Wiesb., 1909, v. 48, pp. 24–26.

Herz, W., presents an additional contribution on bismuth oxide combinations.—*Ztschr. f. anorg. Chem.*, 1909, v. 61, pp. 119–121. See also articles by Moser, *ibid.* pp. 379–386, Herz and Bulla, v. 61, pp. 387–395, and v. 63, pp. 59–62.

**BOROLYCEERINUM N. F.**

Dunn, John A., thinks the N. F. formula for boroglycerin does not give a preparation solid enough and is quite liable to char when brought down to the required weight. He recommends the use of granular boric acid, increasing the boric acid in the formula to 700 gm.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 953.

Taylor, Augustus Carrier, asserts that the N. F. formula for boroglyceride should follow the U. S. P. formula as an alternative process, and be dropped from the Formulary.—*Pharm. Era*, 1909, v. 41, p. 493.

Posey, H. G., asserts that the advantage of boroglycerin over the official glycerite is not apparent, as its density is too great to permit of its easy handling and in a measure precludes its being readily soluble.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 984.

Diehl, C. L., reports from the committee on N. F. the recommendation that boroglycerin be deleted.—*Ibid.*, p. 1061.

**BROMOFORMUM.**

Merck, E. (Darmstadt), points out that the physical properties of bromoform required by the Ph. Fr. V (sp. gr., 2.90 at 15°; boiling point, 152° C.; fusion point, 9° C.), belong to a bromoform without alcohol. Such a product does not keep without alteration. It is decomposed in a short time with separation of bromine. The other pharmacopœias allow a content of from 1 to 4 per cent of alcohol and this addition of alcohol naturally modifies the physical constants. He cites in confirmation Ph. Germ. IV, Ph. Belg. III, Ph. Helv. IV, Ph. Ndl. IV, and U. S. P. VIII.—*Bull. sc. pharmacol.*, Par., 1909, v. 16, p. 546.

McWalter, J. C., thinks that bromoform ought to be investigated as a whooping-cough medicine. He recommends this article for admission to the Ph. Brit.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 20.

Voorhees, Irving Wilson, reports a case of bromoform eruption in a girl of 7 years.—*N. York M. J.*, 1909, v. 89, p. 1145.

Seifert, Otto, reports that the number of intoxications from bromoform has been materially increased, and quotes Feer who cautions against the use of this remedy on the part of the laity.—Apoth. Ztg., Berl., 1909, v. 24, p. 35.

#### BROMUM.

Chattaway, F. D., reviews the discovery of bromine, and points out that, of all the halogens, bromine has the least eventful history. It was discovered in 1826 by Antoine Jérôme Balard, a young man not yet 24 years old, who was at that time lecture assistant in the school of pharmacy at Montpellier.—Chem. News, Lond., 1909, v. 99, pp. 205–206.

An unsigned note discusses the German and American methods for the production of bromine.—Ann. d. pharm., Louvain, 1909, v. 15, pp. 214–217.

An abstract outlines the method employed in the manufacture of bromine in Ohio.—Chem. Eng., 1909, v. 9, p. 48.

An abstract from Oil, Paint & Drug Review discusses the relative quantity of common salt and bromine produced in the United States in 1908.—Drug Topics, New York, 1909, v. 24, p. 263.

Knowles, Frank Crozer, reports on some unusual cases of bromide eruption in childhood.—N. York M. J., 1909, v. 89, pp. 586–590.

#### BUCHU.

Rusby, H. H., thinks that in connection with buchu the allowable stem tissue and fruit should be stated. The character of these stems should also be stated.—Midl. Drug., 1909, v. 43, p. 689. See also Pharm. Era, 1909, v. 42, p. 633.

Beringer, George M., in a report on further work on fluid glycerates presents a formula for fluid glycerate of buchu.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1012. See also Am. J. Pharm., Phila., 1909, v. 81, p. 479.

#### CAFFEINA.

The committee of reference in pharmacy suggests that the loss of water of crystallization for caffeine be a maximum of 8.5 per cent in place of 8.49 per cent, which can not practically be complied with. The solubility in chloroform and alcohol serves no useful purpose.—Chem. & Drug., Lond., 1909, v. 74, p. 290.

Merck, E (Darmstadt), notes that whereas the Ph. Fr. V gives the solubility of caffeine in boiling water at one in 10 parts, as a matter of fact it is almost entirely dissolved in two parts. He cites Ph. Belg. III, Ph. Ital. II [see also Ph. Ital. III, and Ph. Hung. III], Ph. Ndl. IV, Ph. Helv. IV, Ph. Germ. IV, Ph. Svec. IX, Ph. Japon. III, and Schmidt's *Pharmaceutische Chemie*, Hager's

*Pharmaceutische Praxis*, Beilstein's *Handbuch der anorganischen Chemie*.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 546.

Emery, W. O., in a report on cooperative work on headache mixtures outlines a method for determining caffeine in mixtures with sodium bicarbonate and acetanilide.—Am. J. Pharm., Phila., 1909, v. 81, pp. 480-484. See also Proc. Ass. Off. Agric. Chem., 1909, 26th Ann. Conv., pp. 197-200 (Bull. Bur. Chem. U. S. Dept. Agric., 1910, No. 132).

Lendrich and Nottbohm report observations on the caffeine content of coffee, and the loss of caffeine in the roasting of coffee.—Ztschr. f. Unters. Nahr. u. Genussm., 1909, v. 18, pp. 299-308. They also outline a method for determining the caffeine content of coffee, which they believe is applicable also to infusions of coffee and other caffeine and theobromine containing drugs.—*Ibid.*, 1909, v. 17, pp. 241-265.

Wiley, H. W., reports that studies in the pharmacology of caffeine are nearing completion and promise to yield very interesting results.—Ann. Rep. U. S. Dept. Agric. for 1909-10, p. 432.

McGee, J. B., asserts that caffeine, theobromine, and their compounds not only stimulate the heart, but also secondarily dilate the vessels, theobromine being the more active of the two in this respect.—Merck's Arch., 1909, v. 11, p. 83.

Hale, Worth, reports observations on the effects of caffeine and sodium bicarbonate upon the toxicity of acetanilide. He concludes that caffeine is of little or no benefit in acetanilide poisoning in so far as the energy is concerned, and in some cases apparently exerts a harmful effect.—J. Pharm. & Exper. Therap., 1909-10, v. 1, pp. 185-197. See also Bull. Hyg. Lab. U. S. P. H. & M. H. S., 1909, No. 53, pp. 57.

An editorial (J. Am. M. Ass., 1909, v. 53, pp. 1402) calls attention to the work of Hale on the effect of caffeine on the toxicity of acetanilide and antipyrine. The editorial states that this will do much toward placing pharmacology on a firmer basis and restoring that confidence in the materia medica which it deserves.

McWalter, J. C., asserts that caffeine sodiosalicylas is one of the best drugs for heart failure. He recommends that this article be given a place in the Ph. Brit.—Chem. & Drug., Lond., 1909, v. 74, p. 20.

#### CAFFEINA CITRATA.

The committee of reference in pharmacy offers a modified formula for caffeine citras Ph. Brit.—Chem. & Drug., Lond., 1909, v. 74, p. 290.

Dunn, John A., asserts that the U. S. P. formula for effervescent citrated caffeine furnishes too little moisture and works badly, par-

ticularly on small quantities. He suggests that the amount of tartaric acid be decreased and the amount of citric acid increased and that crystallized sodium carbonate be substituted for part of the bicarbonate. He presents a formula.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 945.

#### CALAMUS.

Fussell, M. H., in recommending the deletion of calamus from the Pharmacopœia, asserts that it is no tonic, its valuelessness being proved by its slight use.—Tr. Am. M. Ass., Sec. Pharm. and Therap., 1909, p. 204.

Capps, Pratt, McCrae, and Halsey recommend the deletion of calamus from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

Beringer, Geo. M., points out that despite the fact that only the "unpeeled" dried rhizome is official, and this alone should be used in preparations, it is the "peeled" form only that is salable over the counter and asks whether both should not be recognized for their special uses.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 811.

Holmes, E. M., in discussing the materia medica of Perak, points out that the Indian *Acorus calamus*, Linn., is a rather small and badly prepared root. It is used "for obstinate cases of diarrhœa." No vernacular name is given, but the root in size resembles that of the Japanese *A. spurius* Schott, considered to be a variety of *A. calamus* Linn. (Kew Index).—Proc. Am. Pharm. Ass., 1909, v. 57, p. 753.

#### CALCII BROMIDUM.

Riedel's Berichte (Berlin, 1909, p. xxxv) presents a monograph on calcium bromide, including an enumeration of its properties and a number of tests.

Rosengarten, George D., points out that if a quantity of this salt is used in testing for bromates, and only a drop of diluted sulphuric acid, a yellowish color may be developed, but in such instances bromates could not be detected by any further tests. However, if the salt is covered with diluted sulphuric acid no color results.—Am. Druggist, New York, 1909, v. 55, p. 366.

McWalter, J. C., points out that calcii bromidum seems to have a future in epilepsy. He recommends this drug for admission to the Ph. Brit.—Chem. & Drug., Lond., 1909, v. 74, p. 20.

Barton, Wilfred M., asserts that the salts of calcium have no influence on coagulation time. The treatment of internal hæmorrhages in which the coagulability of the blood is not reduced seems the height of folly. The calcium ion is useful in therapeutics.—J. Am. M. Ass., 1909, v. 52, p. 1560.



### CALCII CARBONAS PRÆCIPITATUS.

A committee of the Syndicat général de la Droguerie française asks that traces of iron be permitted in calcium carbonate.—*Bull. sc. pharmacol.*, Par., 1909, v. 16, p. 288.

Poulenc Frères assert that the Ph. Fr. V demands a purity which can be obtained only in a chemically pure compound the price of which would be prohibitive.—*Ibid.*, p. 408.

The committee of reference in pharmacy recommends that a test for lead in calcium carbonate be provided (10 parts per million).—*Chem. & Drug.*, Lond., 1909, v. 74, p. 290.

Lefeldt, Max, discusses the requirements made for precipitated calcium carbonate in the Ph. Germ. IV and recommends the testing of this substance for metals other than iron.—*Ber. d. pharm., Gesellsch.*, Berl., 1909, v. 19, pp. 230–233. See also *Pharm. Ztg.*, Berl., 1909, v. 54, p. 283.

Hatschek, Emil, describes and illustrates several crystalline forms of calcium carbonate that are obtained under varying conditions of temperature and concentration of solutions.—*Chem. Ztg.*, Cöthen, 1909, v. 33, p. 49.

An editorial note asserts that *Calcarea carbonica* is an excellent remedy where the bony structure is tardy in formation and is indicated by the pale and inelastic skin.—*J. Therap. & Diet.*, 1909–10, v. 4, p. 64.

### CALCII CHLORIDUM.

The committee of reference in pharmacy asserts that the anhydrous salt of calcium chloride should be the official one. A test for lead should be provided (20 parts per million).—*Chem. & Drug.*, Lond., 1909, v. 74, p. 290.

Dohme and Engelhardt report that a shipment of calcium chloride, which assayed only 70 per cent, had attracted a considerable amount of water.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 715.

Pearson, W. A., found two samples of calcium chloride to contain excess of iron, aluminum, magnesium alkalies, and phosphates.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 179.

Luff, Arthur P., discusses the use of the calcium salts in various morbid conditions, with a report of 121 cases—78 per cent cured, 9 per cent benefited, and 13 per cent no good results from the treatment. In only 3 cases have any unpleasant symptoms resulted and these rapidly subsided after suspending the administration of the calcium salt.—*Brit. M. J.*, 1909, v. 1, p. 261.

Collingwood, G. J., discusses the action of calcium ions on blood coagulation.—*Proc. Physiol. Soc., J. Physiol.*, Lond., 1909, v. 38, p. lxxix.

Addis, T., discusses the ineffectiveness of calcium salts and of citric acid as used to modify the coagulation time of the blood for therapeutic purposes, with a description of a modification of McGowan's method of estimating the coagulation time of the blood.—*Brit. M. J.*, 1909, v. 1, pp. 997-999. See also *Ibid.*, pp. 1093, 1151, 1269, 1330.

Capps, Pratt, McCrae, and Halsey recommend the admission of calcium lactate to the U. S. P., and assert that this is being used more and more and is rapidly replacing calcium chloride.—*J. Am. M. Ass.*, 1909, v. 53, p. 792.

Brown, J. F., points out the variation existing in textbooks regarding the solubility of calcium lactate and the possible influence of age on the solubility of this product.—*Pharm. J., Lond.*, 1909, v. 28 (82), p. 381.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 150-154) reviews some of the recent literature relating to the therapeutic use of calcium chloride and calcium lactate.

Additional references on the pharmacology and uses of calcium salts will be found in *Index Medicus* and *J. Am. M. Ass.*

#### CALCII HYPOPHOSPHIS.

The committee of reference in pharmacy suggests that the assay process for calcium hypophosphite be replaced by one based upon Jewett's work. Test for lead should be provided (10 parts per million).—*Chem. & Drug., Lond.*, 1909, v. 74, p. 290.

#### CALCII PHOSPHAS PRÆCIPITATUS.

Mittelbach, Wm., thinks that the adjective "præcipitatus" seems superfluous, as both the British and German pharmacopœias omit it.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 61.

Riedel's *Berichte* (1909, p. xxxvi) presents a descriptive monograph for tribasic calcium phosphate including tests for impurities that may be present.

A committee of the *Syndicat général de la Droguerie française* asks that 0.2 per cent iron be permitted in neutral calcium phosphate.—*Bull. sc. pharmacol., Par.*, 1909, v. 16, p. 288.

Poulenc Frères assert that the conditions of the Ph. Fr. V can only be fulfilled by a chemically pure product, the cost of which would be not less than 20 francs per kilo.—*Ibid.*, p. 408.

Rosengarten, George D., points out that the limit for chlorides is exceedingly difficult to attain.—*Am. Druggist, N. Y.*, 1909, v. 55, p. 366.

Dohme and Engelhardt report one sample of precipitated calcium phosphate that had to be rejected because of excess of chloride.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 714.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 17), report an appreciable contamination with iron, in 18 of 22 samples of calcium phosphate examined. The proportion of water soluble matter was found to lie between 0.56 and 6 per cent. From 0.06 to 2 per cent of chloride, and up to 2.08 per cent of calcium sulphate, was also detected in different samples.

Southall Bros. and Barclay (Rep., 1908-9, Birmingham, 1910, p. 29) report that calcium phosphate has again proved in some cases to be contaminated with arsenic, in one instance as much as 80 parts per million being detected.

An editorial note asserts that in all cases where the bony development is tardy, calcarea phos. should form a prominent part of the treatment.—J. Therap. & Diet., 1909-10, v. 4, p. 64.

### CALCII SULPHAS EXSICCATUS.

Mittelbach, Wm., thinks that the title "Calcii Sulphas Exsiccatus" could be shortened. If a qualifying word is needed in its name, "anhydrous" would be better.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 61.

An unsigned article describes and illustrates the processes employed in the manufacture of plaster of Paris.—Chem. Eng., 1909, v. 9, pp. 130-133.

Düsterbehn points out that the Ph. Fr. V requires that exsiccated calcium sulphate mixed with half its weight of water should harden within 10 minutes, and that the Ph. Germ. IV requirement is that the same mixture harden within 5 minutes.—Apoth. Ztg., Berl., 1909, v. 24, p. 228.

Schoorl, N., in a discussion of the microchemical analysis of insoluble substances outlines a method for the detection of calcium sulphate.—Ztschr. f. anal. Chem., Wiesb., 1909, v. 48, p. 666.

### CALENDULA.

Fussell, M. H., in recommending the deletion of calendula from the Pharmacopœia, asserts that it is spoken of in the past tense by therapeutists.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 204.

Capps, Pratt, McCrae, and Halsey, recommend the deletion of calendula from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

Beringer, George M., referring to a criticism on fluid extract of calendula in Circular Letter No. 15, asserts that his own experience proves conclusively that the menstruum directed in the N. F. is *not* satisfactory. He has used alcohol with satisfaction.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1071.

Cook, E. Fullerton, reports that alcohol is the best menstruum for tincture of calendula, although a slight precipitate that firmly attaches itself to the bottom of the bottle is formed.—*Ibid.*, p. 1001.

## CALUMBA.

Fussell, M. H., in recommending its deletion from the Pharmacopœia, asserts that calumba has only its bitter taste to recommend it.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 204.

The committee of reference in pharmacy submits a monograph for *calumbæ radix* and asserts that it is more accurate than the present one.—Chem. & Drug., Lond., 1909, v. 74, p. 290.

The committee on drug market (quoting Pharm. Era.) reports a false calumba root mixed with market lots. It is free from bitterness, yields no alkaloid, is more reddish in color, and the starch grains are different.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 732.

The Belgian inspectors of pharmacies report that calumba roots are sometimes worm-eaten.—J. d. pharm. d'Anvers, 1909, v. 65, p. 549.

Caldwell, Paul, thinks that fluid extract of calumba can be dropped from the U. S. P. for the reason that the tincture is used instead.—Bull. Pharm., 1909, v. 23, p. 115.

Cook, E. Fullerton, reports that the formula for tincture of calumba is very satisfactory, only a slight precipitate forming in the resulting preparation.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1001.

Biberfeld, Joh., reports a study on the pharmacology of the alkaloids of calumba, including jateorrhizine, columbamine, and palmatine.—Ztschr. f. exper. Path. u. Therap., 1909-10, v. 7, pp. 569-576.

## CALX.

Mittelbach, Wm., thinks that the terms calx and lime in connection with calcium oxide are superfluous, and believes that *Calcii Oxidum* (Calcium oxide) would be a better official name.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 61.

Beringer, George M., thinks that the retention of the name calx is justifiable, especially owing to the simplicity of its genitive for liquor calcis, etc., instead of liquor calcii hydroxidi.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 795.

The committee of reference in pharmacy believes that only lime made from marble should be official. It also recommends that a test for lead be provided (20 parts per million).—Chem. & Drug., Lond., 1909, v. 74, p. 290.

Poulenc Frères state that the Ph. Fr. V prescribes the preparation of calcium oxide by the calcination of marble and does not admit in the lime obtained the impurities normally found in the basic material.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 408.

Sargeant, F. Pilkington, points out that calcium hydroxide (slaked lime) is one of the most useful substances employed by the farmer and fruit grower.—Pharm. J. Lond., 1909, v. 29 (83), p. 236. Also Drug Topics, New York, 1909, v. 24, p. 342.

## CALX CHLORINATA.

Mittelbach, Wm., thinks that chlorinated lime might more properly be designated as calcium chloride.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 61.

Schamelhout, A., notes that chlorinated lime Ph. Fr. V should contain at least 34.98 per cent of active chloride, the Belgian product may contain only 24.85 per cent.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 8.

A committee of the Syndicat général de la Droguerie française asks that the standard for "chloride of lime" be reduced to from 90 to 100 liters of Cl per kilo.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 288.

Dunn, John A., suggests the following modification of the U. S. P. assay method for chlorinated lime: Place about 25 cc. of water in a flask and weigh accurately, add about 0.25 gm. of sample and weigh again. Then follow the U. S. P. directions, breaking up any possible lumps with a stirring rod. This variation prevents loss of chloride during handling.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 951.

Caldwell, Paul, asserts that chlorinated lime, while honored enough to have an assay attached, is so cheap, so widely used, and for such crude purposes that it does not deserve the dignity of a place in the Pharmacopœia unless grocers become members of the A. Ph. A.—Bull. Pharm., 1909, v. 23, p. 115.

Orton and Jones report a study on a crystalline bleaching powder.—J. Chem. Soc., Lond., 1909, v. 95, pp. 751-757.

Jacobsen, C., presents some observations on the commercially available chlorinated lime.—Apoth. Ztg., Berl., 1909, v. 24, pp. 893-894.

Lücker, Ed., points out that it is not impossible to secure chlorinated lime that fully complies with the requirements of the Pharmacopœia.—*Ibid.*, v. 24, p. 930.

Orton and Jones discuss the estimation of the alkalinity of bleaching powder solutions.—Analyst, London, 1909, v. 34, pp. 317-318.

Dohme and Engelhardt rejected several shipments of chlorinated lime, which yielded considerably less available chlorine than required by the U. S. P.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 715.

Army, H. V., reports 4 samples of chlorinated lime examined; one up to the U. S. P. requirement, the others contained 23.6, 24.6, and 27.2 per cent available chlorine.—Proc. Ohio Pharm. Ass., 1909, p. 66.

Brown, Edward J., discusses the chlorinated solutions of the British Pharmacopœia, and points out that the solution of chlorinated soda should suffice to meet all possible requirements.—Brit. & Col. Drug., 1909, v. 55, p. 178.

Dorset, M., discusses the use of chlorinated lime as a disinfectant, and points out that as a disinfectant it has no advantages over formaldehyde, carbolic acid, or cresol.—*Spatula*, 1908-9, v. 15, p. 234.

Kühl, Hugo, reports experiments to determine the disinfecting value of chlorinated lime. Biological experiments show that even traces of this substance have an inhibiting effect on the growth of microorganisms present in urine.—*Apoth. Ztg.*, 1909, v. 24, p. 176.

Mason, William Pitt, asserts that there is no question but that those of us who have taken ground as opposed to the "disinfection" of water by "bleach," hypochlorite of sodium, or other substances, must change our position.—*Chem. News, Lond.*, 1909, v. 100, p. 321.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 154-155) reviews some of the recent literature relating to the use of chlorinated lime in the treatment of chilblains.

#### CALX SULPHURATA.

Mittelbach, W., thinks that sulphurated lime might more properly be designated as calcium sulphide.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 61.

The committee of reference in pharmacy asserts that the assay for calx sulphurata should be made in a stoppered flask, and the mixture should be heated and well shaken for 10 minutes.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 290.

Rosengarten, George D., points out that the U. S. P. test for the percentage of pure calcium sulphide is somewhat misleading, as there is always iron present, which will, on the addition of ammonia, impart a brownish color to the filtrate.—*Am. Druggist, N. Y.*, 1909, v. 55, p. 366.

Scoville, W. L., reports on calcium sulphide assaying from 53.5 to 72.4 per cent pure.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 732.

An editorial points out that the homœopathic school of medicine has used calx sulphurata, under the name of hepar sulphuris calcarea, since the time of Hahnemann, about 1810.—*J. Am. Inst. Homœop.*, 1909, v. 1, p. 580-581.

An editorial note asserts that "Hepar Sulph. or sulphide of calcium" should always be thought of whenever there is a formation of pus caused by a low condition of the blood as evidenced by the formation of boils, cold abscesses, etc.—*J. Therap. & Diet.*, 1909-10, v. 4, p. 64.

Ussher, Clarence D., discusses the therapeutics of calcium sulphide in relation to surgery and contagious diseases, with a report of a number of cases in which he has used it with advantage.—*Med. Rec.*, N. Y., 1909, v. 76, pp. 508-511.

## CAMBOGIA.

Francis, J. M., reports that gamboge, particularly the powdered article, shows a tendency to run somewhat low in quality. More specific data are required in the Pharmacopœia regarding this article to secure a better quality of drug.—Proc. Pennsylvania Pharm. Ass., 1909, p. 124.

## CAMPHORA.

True and Hood discuss the cultivation of camphor in America, report the results of experimental distillations carried out chiefly on Florida material, and conclude that while the question of profit and loss is still largely one of estimates, the evidence thus far points toward a distinctly favorable outcome.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 719-721.

An editorial points out that considerable attention has been devoted to the subject of camphor cultivation in India, and that plantations are being opened up, notably in southern India.—Brit. & Col. Drug., 1909, v. 56, p. 132.

Delphin, T., discusses the history, use, and composition of camphor, and the production of synthetic camphor.—Svensk. farm. Tidskr., 1909, v. 13, pp. 41-45, 61-66.

Gerock, J. E., discusses the economic conditions prevailing in connection with camphor, and points out that the monopoly in camphor has been limited by the possible production of synthetic camphor.—J. d. pharm. v. Elsass-Lothr., 1909, v. 35, pp. 41-47.

Roure-Bertrand Fils (Sc. & Ind. Bull. Grasse, April, 1909, pp. 127-131) review some of the recent literature relating to camphor and the chemistry of camphor.

Tunmann, O., discusses the reasons for the vanillin hydrochloric acid reaction of camphor, and concludes that this reaction is due to contaminating substances, occurring in the tree itself, that are retained by camphor in the several processes of purification to which it is submitted.—Schweiz. Wchnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, pp. 517-519.

Bredt, J., reports a series of experiments on the constitution of camphor and its derivatives.—Ann. d. Chem., Leipz., 1909, v. 366, pp. 1-70.

Johnston, W., puts in a plea for the recognition of synthetic camphor in the next Ph. Brit., and thinks there is no substantial reason why it should be excluded. He presents a number of published opinions and calls attention to points of resemblance and points of dissimilarity of the natural and synthetic camphor.—Pharm. J., Lond., 1909, v. 29 (83), pp. 534-535. See also Drug Topics, New York, 1909, v. 24, pp. 329-330.

The A. Ph. A. committee on the drug market thinks that provision should be made in the next U. S. P. whereby the use of synthetic camphor preparations will be permissible.—*Drug Topics*, New York, 1909, v. 24, p. 358.

The committee of reference in pharmacy asserts that synthetic camphor should be excluded by requiring that camphor should be melted at  $175^{\circ}$  C., and that a solution of 25 gm. in alcohol (90 per cent) to produce 100 cc. at  $16^{\circ}$  C. should exhibit an optical rotation of about  $+10^{\circ}$  in a 100-mm. tube.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 290.

Riedel's *Berichte* (Berlin, 1909, p. xxxvii) presents a monograph on synthetic camphor giving its properties and enumerating a number of tests. The melting point is given as ranging from  $170^{\circ}$  to  $178^{\circ}$ .

Rusby, H. H., thinks that the therapeutical status of artificial camphor should be determined under the close direction of the Revision Committee, with no possibility of the exercise of influence for interested parties.—*Midl. Drug.*, 1909, v. 43, p. 689. See also *Pharm. Era*, 1909, v. 42, p. 633.

Dohme and Engelhardt report that they did not meet with any synthetic camphor this year. Considerable work has been done in distinguishing this product from the natural.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 715.

Southall Bros. & Barclay (Rep. 1908-9, Birmingham, 1910, p. 20) state that they find little synthetic camphor to be offered.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 17) report that the whole of 72 consignments examined were genuine and free from synthetic products.

The Belgian inspectors of pharmacies report that the artificial camphor which was very common during the first year of this biennial period has almost completely disappeared.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 549.

Lohmann, W., discusses the production of synthetic camphor and the differentiation between natural and synthetic camphor.—*Ber. d. pharm. Gesellsch.*, Berl., 1909, v. 19, pp. 222-230. See also *Pharm. Ztg.*, Berl., 1909, v. 54, p. 283.

Darrah, William A., presents a description of the processes employed for the manufacture of synthetic camphor; also discusses the occurrence and properties of natural camphor.—*Chem. Eng.*, 1909, v. 9, p. 163-165.

An abstract from an English patent granted to J. N. Goldsmith outlines the process of making artificial camphor, and describes the several substances that are obtained.—*Drug Topics*, New York, 1909, v. 24, p. 138.

Blanc, G., in a monograph (included as supplement with *Bull. Soc. chim.*, Par., 1909, v. 5, p. xviii) discusses the chemistry of camphor and related bodies.



Haller, in a comprehensive review of natural and artificial camphor, presents a table showing the exportation of camphor from Japan during the years 1868-1908, and points out that upward of 70 per cent of the product is consumed in the production of celluloid.—Proc. VIIIth Internat. Cong. App. Chem.-Organization, etc., 1909, London, 1910, pp. 23-36.

Gehe & Co. (Handelsbericht, 1909, pp. 51-56) discuss the economic condition of the camphor market in various countries, and present tables showing the export of camphor from Japan, Formosa, and China to the several countries of the world.

A news note asserts that the export of camphor from Formosa in 1908 shows a falling off of about 33 per cent as compared with 1907.—Pharm. J., Lond., 1909, v. 28, p. 851.

Additional references on the chemistry of camphor and related products will be found in Chem. Abstr. Am. Chem. Soc.; J. Chem. Soc., Lond., 1909; Chem. Zentralbl., Berl.; and Bull. Soc. chim., Par., 1909.

Caille, E., reports observations on the variation of the solidification temperature of mixtures of camphor with salol, betanaphthol or resorcin.—Bull. Soc. scient. et méd. d. l'ouest, Rennes, 1909, v. 18, pp. 77-86.

Diehl, C. L., reports from the committee on N. F. recommending a change in title of Camphor-Menthol to "Menthol Camphoratum."—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1061.

Members of the Baltimore branch express the belief that the ingredients of camphor-menthol can be easily liquified without being powdered by warming in a closed bottle.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 55.

The disciplinary committee of the Syndicate of Pharmacists of the Department of the Seine proposes a method for the assay of camphor cerate.—J. d. pharm. et d. chim., Par., 1909, v. 30, pp. 491-493.

Richardson and Walton report observations on the analysis of camphorated oil for camphor substitutes.—Pharm. J., Lond., 1909, v. 28 (82), pp. 3-4.

An editorial (*Ibid.*, p. 609) commenting on the use of synthetic camphor in camphorated oil suggests that for the present it will perhaps be advisable for pharmacists to use the natural product only.

Schamelhout, A., notes that in France 90 per cent alcohol, and in Belgium 80 per cent, is used for concentrated tincture of camphor. The dilute preparation of the Ph. Fr. V is prepared with 60 per cent alcohol while the [Belgian] formulary employs 50 per cent alcohol.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 82.

Deussen, Ernst, discusses the quantitative estimation of camphor in spirit of camphor and reports a series of determinations.—Arch. d. Pharm., 1909, v. 247, pp. 307-313.

Gane and Webster discuss the determination of camphor and the determination of alcohol in spirit of camphor. They point out that optical activity is not to be depended upon for determining the amount of camphor present, as the specific rotary power of natural camphor varies considerably with the strength of the alcoholic solvent and the synthetic product is optically inactive.—*Drug Topics*, New York, 1909, v. 24, p. 132.

Berger discusses the determination of natural and of synthetic camphor in spirit of camphor.—*Schweiz. Wehnschr. f. Chem. u. Pharm.*, Zürich, 1909, v. 47, pp. 733-735.

La Wall, Charles H., presents observations on the rapidity of volatilization of camphor.—*Am. J. Pharm.*, 1909, v. 81, p. 545. Also *Proc. New Jersey Pharm. Ass.*, 1909, pp. 42-44.

An editorial comments on the experiments reported by Barnard (*Pharm. Review*) to determine the alteration of spirit of camphor by keeping.—*Drug. Circ. N. Y.*, 1909, v. 53, p. 6. See also *Am. Druggist*, N. Y., 1909, v. 54, p. 105.

The Belgian inspectors of pharmacies report that they have frequently noted the employment of methyl alcohol and sometimes also of artificial camphor.—*J. d. pharm. d'Anvers*, 1909, v. 65, pp. 589, 629.

*Table showing some of the reported analytical results on spirit of camphor.*

| Reporter.                 | Number of samples— |           | Reference.   |
|---------------------------|--------------------|-----------|--|
|                           | Examined.          | Rejected. |  |
| Sayre and Zieff.....      | 223                | 99        | Bull. Kansas Bd. Health, 1909, v. 5, D. A., 16-23.             |
| Scovell, M. A.....        | 1                  | 1         | Rep. Kentucky Agric. Exper. Sta. (1908-9), 1910, p. 7.         |
| Woods, Charles D.....     | 11                 | 2         | Rep. Maine Agric. Exper. Sta. (1909), 1910, App. pp. 150, 184. |
| Dickman, George C.....    | 406                | 26        | Rep. New York Bd. Pharm. (1909), 1910, p. 11.                  |
| Thurston, Asor.....       | 14                 | 1         | Midl. Drug. & Pharm. Rev., 1909, v. 43, p. 454.                |
| Wetterstrom, Theo. D..... | 1                  | 1         | Proc. Ohio Pharm. Ass., 1909, p. 63.                           |
| Dunlap, Benick W.....     | 22                 | 14        | Rep. Ohio Dairy & Food Com., 1909, p. 58.                      |

An editorial note asserts that camphor has been used empirically and as a sort of household cure-all since the time when the world was younger than it now is. In therapeutic doses it is very useful in nervous headaches, nervous depression, and the first stage of a cold in which there is vasomotor disturbance.—*Eclectic Rev.*, 1909, v. 12, p. 155.

Webb, Frank, asserts that camphor is indicated in asthma accompanied by great suffocation, violent day cough, great anxiety, pale cold surface, seems as if the heart would break through the ribs after each paroxysm. Suffocative dyspnoea with sensation of suffocation from fumes of sulphur.—*J. Therap. & Diet.*, 1909-10, v. 4, p. 108.

Frey, Ernst, discusses the influence of camphor on the pulmonary circulation.—*Ztschr. f. exper. Path. u. Therap.*, 1909-10, v. 7, p. 50.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 155-156) reviews some of the recent literature relating to the use of camphor as a medicament, more particularly in gastro-intestinal ailments of infants.

Additional references on the pharmacology and uses of camphor will be found in *Index Medicus* and *J. Am. M. Ass.*

#### CAMPHORA MONOBROMATA.

Mittelbach, Wm., points out that monobromated camphor, according to its chemical formula, is a camphor bromite, and asks why not so designate it.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 61.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 156-157) reviews an article by Cassin and Girard, who used subcutaneous injections of monobromated camphor with excellent results in psychic excitability during typhoid fever, and in psychic disturbances following menorrhagia.

#### CANNABIS INDICA.

Beringer, George M., asks if it is wise to restrict cannabis indica to plants "grown in the East Indies" and exclude all other countries where it is indigenous (Persia, for example) or where cultivated.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 811.

Galloway, B. T., points out that the work at Arlington has shown that cannabis indica can be grown successfully in this country and that it yields a product equal in physiological activity to the imported article.—*Ann. Rep. U. S. Dept. Agric. for 1909-10*, p. 280.

True and Klugh report on experiments with American-grown cannabis indica grown in part at Washington and in part at Pierce, southern Texas. They point out that although supposed to have been of like botanical origin, the plants obtained showed very differing characteristics as regards stature, form, and general appearance.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 843-845.

Francis, John M., asserts that cannabis indica is grown in various parts of the United States, particularly in Kentucky, Tennessee, and Minnesota, and is indistinguishable in its therapeutic effects from the East Indian cannabis.—*Ibid.*, p. 832.

Caesar & Loretz (*Geschäfts-Ber.*, 1909, p. 31) assert that the true Indian cannabis is still being held at an inordinately high price and is being substituted largely by the drug grown in Germany or in Africa. They think that the extract obtained from the cheaper drug is quite equal in activity to that obtained from the genuine Indian variety.

Rusby, H. H., points out that in view of the fact that we have definite testimony of centuries from millions of those who habitually use the article for its narcotic properties, substitutes are worthless, some very careful and thorough work should be performed before the revision committee reaches a decision.—Pharm. Era, 1909, v. 42, p. 633. Also Midl. Drug., 1909, v. 43, p. 689.

The committee of reference in pharmacy asserts that in view of the potency of *cannabis indica* and the inferior quality of much that is imported from other countries than India, the official drug should be restricted to the Indian variety, as at present.—Chem. & Drug., Lond., 1909, v. 74, p. 290.

Holmes, E. M., asserts that during the last few years a considerable quantity of guaza (Indian hemp) has been imported from East Africa as it thus avoids the heavy duty imposed upon the drug in India.—Pharm. J., Lond., 1909, v. 29 (83), p. 132.

Kline, C. M., reports that Madagascar cannabis is offered at a much lower price than true *Cannabis sativa* and may easily be mistaken for the authentic drug because of the general similarity of appearance.—Proc. N. W. D. A., 1909, p. 128.

Martin, William, points out that *cannabis indica* is not much used in Great Britain, but that this does not lessen the need for supplying an active preparation when it is prescribed. He outlines his method of testing this drug.—Pharm. J., Lond., 1909, v. 29 (83), p. 149. See also Year-Book of Pharmacy, Lond., 1909, pp. 240–241.

Marshall, C. R., reports a number of experiments on the cause of the loss of activity of Indian hemp and its preparations.—Pharm. J., Lond., 1909, v. 28 (82), p. 418.

Czerkis, M., presents observations on cannabinal, the active constituents of hashish.—Pharm. Post., Wien, 1909, v. 42, pp. 794–795. Also Ztschr. d. allg. österr. Apoth.-Ver., Wien, 1909, v. 47, pp. 458–459.

Merck & Co. state that cannabin tannate was first manufactured by E. Merck almost 30 years ago at the request of university professors, and that there is still a demand for it, which they are looked to to supply; whether this demand emanates from scientific investigators or practicing physicians they have no means of knowing.—J. Am. M. Ass., 1909, v. 52, p. 399. See also *Ibid.*, v. 51, p. 1780. Bull. Hyg. Lab. No. 75, p. 213.

Vanderkleed, C. E., reports 14 assays of *cannabis indica*, lowest 10.45, highest 14.78, all above standard.—Proc. Pennsylvania Pharm. Ass., 1909, p. 129.

Dunlap, Renick W., reports one sample of *cannabis* examined; not passed.—Rep. Ohio Dairy & Food Com., 1909, p. 59.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 18), report on one sample of *cannabis indica* which yielded 20.5 per cent of

its weight to 90 per cent alcohol, and when incinerated left 16.44 per cent of ash.

Southall Bros. & Barclay (Rep. 1908-9, Birmingham, 1910, pp. 32-33) found that extract of cannabis was not wholly soluble in 90 per cent alcohol. See also Year-Book of Pharmacy, Lond., 1902, p. 220.

The committee of reference in pharmacy asserts that in connection with ext. cannabis indicæ the directions should be "concentrate at a low temperature."—Chem. & Drug., Lond., 1909, v. 74, p. 292.

Caldwell, Paul, thinks that fluid extract of cannabis indica can be dropped from the U. S. P., for the reason that the tincture is used instead.—Bull. Pharm., 1909, v. 23, p. 115.

Cook, E. Fullerton, reports that the formula for tincture of Indian cannabis is entirely satisfactory.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1001.

Pearson, W. A., reports three samples of cannabis indica examined physiologically; one was of standard strength, the others five-sixths and two-thirds as potent as the standard.—Proc. Pennsylvania Pharm. Ass., 1909, p. 179.

An editorial note asserts that the specific indications for cannabis indica are as follows: Great nervous depression; irritation of the genito-urinary tract; painful micturition; low mental conditions; wakefulness; insomnia, with unpleasant dreams during momentary sleep; spasmodic and painful conditions, with nervous depression; mental illusions; menstrual headache; palpitation of the heart, with sharp sticking pain in the heart; hallucinations; cerebral anæmia, fear, spasm of cerebral vessels.—J. Therap. & Diet., 1909-10, v. 4, p. 96.

Additional references on the pharmacology and uses of cannabis indica will be found in Index Medicus and J. Am. M. Ass.

#### CANTHARIS.

Beringer, George M., points out that the official description of cantharis is in error in the statement that the powder "contains few or no hairs." The hairs on this beetle are characteristic and evident, and a distinct feature in the powder. The description is also defective in giving no criterion of strength or value of the drug.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 812.

Rusby, H. H., asserts that within the last two years the Government has admitted to commerce importations of *Mylabris*, or Chinese blistering beetles, under the name of cantharides.—Midl. Drug., 1909, v. 43, p. 689. Also Pharm. Era, 1909, v. 42, p. 634.

The Second International Congress for the Suppression of Adulterations (Paris, 1909) considered a definition of cantharides.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 357. See also Chem. & Drug., Lond., 1909, v. 75, p. 682.

Umney, J. C., asserts that the limit of cantharidin proposed is precisely the same as in the French Codex, viz, 0.4 per cent, but the figure is rather low. The German Pharmacopœia requires practically twice as much cantharidin, viz, 0.8 per cent; 0.5 per cent might be fixed as a minimum.—Chem. & Drug., Lond., 1909, v. 75, p. 579.

Schamelhout, A., notes that there are many other vesicant insects, and that the species official in Japan is *Epicauta gorhami* Mars. The cantharides official in Belgium should have, on incineration, an ash of not more than 8 per cent, and should contain at least 0.6 of cantharidin.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 175.

Peters, W., gives the moisture content of cantharides as 6.59 to 8.27 per cent; the ash content of the air-dry drug as being 6.79 to 6.91 per cent; the ash content of the dried drug as 6.37 to 7.53 per cent; and the color of the resulting ash as reddish gray.—Apoth. Ztg., Berl., 1909, v. 24, p. 537.

Schamelhout, A., notes that whereas the Ph. Belg. III requires at least 0.6 per cent of cantharidin, the Ph. Fr. V requires a minimum content of 0.4 per cent.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 7.

Walburn, L. E., discusses the estimation of cantharidin in cantharides and presents a number of observations showing the value of various solvents.—Pharm. Zentralh., 1909, v. 50, pp. 661-664. Also Arch. f. Pharm. og Chem., 1909, v. 16, pp. 77-80, 95-97.

The committee of reference in pharmacy submits an assay process for cantharis.—Chem. & Drug., Lond., 1909, v. 74, p. 290.

Tocher, J. F., in discussing the above report, expresses the belief that it would be interesting to know the data upon which the minimum percentage of cantharidin in cantharides is based. He thinks an assay process for cantharides is a desirable addition.—Year-Book of Pharmacy, Lond., 1909, p. 228.

Middleton, J. W., in commenting on the same report, agrees that it would be desirable to standardize the various preparations of cantharides and thinks the suggestion to use cantharidin a practical one.—Chem. & Drug., Lond., 1909, v. 74, p. 386.

Fromme, G., reviews some of the recent literature relating to the chemistry of cantharides and the assay of this drug for cantharidin.—Geschäfts-Ber. v. Caesar & Loretz, 1909, pp. 63-64. See also pp. 75-76.

The Belgian inspectors of pharmacies find cantharides often deteriorated, sometimes putrefied. It is desirable to preserve cantharides in drying bottles.—J. d. pharm. d'Anvers, 1909, v. 65, p. 549.

Dunn, John A., points out that the formula for cerate of cantharides of the 1890 U. S. P., which uses oil of turpentine instead of the liquid petrolatum of the 1900 U. S. P. formula, gives a much more potent preparation.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 944.

Berger, Fr., points out that the Ph. Helv. IV ointment of cantharides is now directed to be made with cantharidin.—Schweiz. Wehnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, p. 46.

The Belgian inspectors of pharmacies report that cantharidal ointment is only rarely employed; they still find the old preparation, of the Ph. Belg. II and quite rancid.—J. d. pharm. d'Anvers, 1909, v. 65, p. 623.

Beringer, George M., asserts that the present formula for cantharidal collodion could be improved on.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 817.

Cook, E. Fullerton, thinks the formula for tincture of cantharides satisfactory, there is but a slight precipitate which is readily mixed in and forms a faintly cloudy tincture.—*Ibid.*, p. 1001.

Lancereaux, has been using cantharides since 1892 in a number of cases of nephritis characterized by irritation of the epithelium of the uriniferous tubules with almost complete anuria.—J. Am. M. Ass., 1909, v. 52, p. 1283.

#### CAPSICUM.

Woods, Charles D., defines Cayenne pepper, cayenne, as the dried ripe fruit of *Capsicum frutescens* L., *C. baccatum* L., or some small-fruited species of *Capsicum*, and contains not less than 15 per cent of nonvolatile ether extracts; not more than 6.5 per cent of total ash; not more than 0.5 per cent of ash insoluble in hydrochloric acid; not more than 1.5 per cent of starch, and not more than 28 per cent of crude fiber.—Rep. Maine Agric. Exper. Sta. (1909), 1910, App., p. 117.

The committee of reference in pharmacy suggests that the following details should be added to the official description of capsicum: The outer epidermis of the pericarp is composed of cells which possess moderately thick walls, are often arranged in rows of five to seven, and exhibit a uniformly striated cuticle (distinction from the fruits of other species of capsicum.—Chem. & Drug., Lond., 1909, v. 74, p. 291.

Rusby, H. H., asserts that Japanese capsicum, while very pretty, is not of good quality and thinks that the Pharmacopœia description should exclude it.—Midl. Drug., 1909, v. 43, p. 689. Also Pharm. Era, 1909, v. 42, p. 634.

Augustin, Bela, presents a contribution to the history of the introduction and uses of paprika (*Capsicum annum*) in Hungary.—Pharm. Post, Wien, v. 42, p. 129.

LaWall, Charles H., outlines a method for the detection of small quantities of capsicum in ginger.—Am. J. Pharm., Phila., 1909, v. 81, pp. 218-219.

Vanderkleed, C. E., reports 5 assays of capsicum, lowest 14.34, highest 17.96 per cent oleoresin; all above standard.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 129.

Southall Bros. & Barclay (Rep. 1908-9, Birmingham, 1910, p. 8) report 2 samples of capsicum yielding 15.4 and 14 per cent of matter soluble in benzol.

Mittelbach, Wm., thinks the formula for capsicum plaster excellent.—*Proc. Am. Pharm. Ass.*, 1909, v, 57, p. 816.

Caldwell, Paul, thinks that fluid extract of capsicum can be dropped from the U. S. P. for the reason that the tincture is used instead.—*Bull. Pharm.*, 1909, v, 23, p. 115.

Cook, E. Fullerton, reports that the formula for tincture of capsicum is satisfactory. The resulting preparation is slightly cloudy when first finished, but only a small amount of precipitate forms on standing for a year.—*Proc. Am. Pharm. Ass.*, 1909, v, 57, p. 1001.

An editorial (*J. Therap. & Diet.*, 1909-10, v, 4, p. 36) asserts that capsicum is one of the best defusive stimulants at our command. Its action is quick, and there is not very much danger of doing very much mischief by its administration.

#### CARBO ANIMALIS.

A committee of the *Syndicat général de la Droguerie française* asks that the emitting of an empyreumatic odor, on heating animal charcoal, be tolerated.—*Bull. sc. pharmacol.*, Par., 1909, v, 16, p. 238.

Mittelbach, Wm., asserts that the *Pharmacopeia* should recognize only the purified product, the commercial variety is fit only for technical uses, and ought never be used in medicine nor for analytical purposes.—*Bull. Am. Pharm. Ass.*, 1909, v, 4, p. 61.

E. Merck's Annual Report (1909, Darmstadt, 1910, v, 23, p. 157) quotes Secheyron, who recommends *carbo animalis* as an unfailing remedy in fungus poisoning. Ordinary wood charcoal is said to be of excellent service, although its use is not sufficiently recognized.

#### CARBO LIGNI.

Mittelbach, Wm., thinks that the English title for *carbo ligni* should be given as "wood" charcoal.—*Proc. Am. Pharm. Ass.*, 1909, v, 57, p. 812.

Yvon, Z. Ph., discusses the production of wood charcoal and the chemistry of carbonization.—*Chem. Trade J.*, 1909, v, 45, pp. 87-88.

The committee of reference in pharmacy asserts that the limit of ash in *carbo ligni* should be raised to 10 per cent, and a test with potassium-hydroxide solution introduced to guard against insufficient carbonization.—*Chem. & Drug.*, Lond., 1909, v, 74, p. 291.



A committee of the Syndicat général de la Droguerie française asks that the emitting of an empyreumatic odor, on heating vegetable charcoal, be tolerated.—Bull. sc. pharmacol, Par., 1909, v. 16, p. 288.

Poulenc Frères assert that, up to the present, it has been impossible for them to find any charcoal which yields no empyreumatic products on calcination.—*Ibid.*, p. 408.

Aschan, Ossian, discusses the constitution of charcoal and the probable difference existing between animal and wood charcoal.—Chem. Ztg., Cöthen, 1909, v. 33, pp. 561-562.

Knecht, Edmund, discusses the decolorizing action of various forms of charcoal and points out that the more closely the substance approaches in composition to pure carbon the less is its decolorizing power.—Proc. VIIIth Internat. Congress App. Chem., Sec. IVb., Colouring, 1909, London, 1910, pp. 17-18.

Amos, W. S., thinks that bulk charcoal can be purchased having nearer U. S. P. qualities than the higher priced and advertised bottled charcoal. He gives the results of his tests of three samples.—Proc. Kansas Pharm. Ass., 1909, p. 55.

Southall Bros. & Barclay (Rep. 1908-9, Birmingham, 1910, p. 9) experienced considerable difficulty in obtaining supplies of wood charcoal with a sufficiently small proportion of mineral matter to satisfy their requirements. The ash yielded by the 17 samples examined ranged from 2.6 to 17.1 per cent, no less than 9 of the samples exceeding the pharmacopœia limit of 7.5 per cent.

Harris, H., asserts that carbo ligni is a powerful factor for good in all cases of bleeding of a passive nature where increased coagulability is desired; in fact, all cases of hæmorrhage not due to traumatic injury to vessel walls.—Eclectic Rev., 1909, v. 12, pp. 329-330.

#### CARBONEI DISULPHIDUM.

Mittelbach, Wm., asserts that carbon disulphide would look and sound better if designated as carbon bisulphide, or better still, just plain sulphide.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 61.

The committee of reference in pharmacy asserts that the official name of carbon bisulphide should be "carbon disulphidum," and bisulphide of carbon should be given as a synonym. It is not necessary that it should be chemically pure, so that the words "very soluble \* \* \* moistened with water" should be omitted, and the lead test deleted.—Chem. & Drug., Lond., 1909, v. 74, p. 291.

Weiss, John Morris, reports observations on the determination of carbon bisulphide in benzol.—J. Ind. Eng. Chem., 1909, v. 1, pp. 604-605.

## CARDAMOMUM.

Rusby, H. H., thinks there is no good authority for the claim that the entire fruit should be ground for the making of preparations of cardamon, and that it should be specified that only the seeds are to be employed.—Midl. Drug., 1909, v. 43, p. 689. See also Pharm. Era, 1909, v. 42, p. 634.

The committee of reference in pharmacy asserts that as the fruits of genuine cardamoms are more easily identified than the seeds, the fruits should be made official, and the description altered accordingly and microscopic details of the seeds given. The ash limit should be raised to 6 per cent.—Chem. & Drug., Lond., 1909, v. 74, p. 291.

Holmes, E. M., in discussing the materia medica of Perak, points out that the cardamomum seeds, called "Yeler arisi," were recognized by Sir Geo. Watt as the seeds of *Elettaria cardamomum* Maton var. *major* Sm. Yeler seems to be a corruption of Ela, which is the Tamil name for cardamoms, and arisi means without husk.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 756.

Cook, E. Fullerton, reports that tincture of cardamom is slightly cloudy when finished, but only a light, easily mixed precipitate has formed.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1001.

He also reports that compound tincture of cardamom, U. S. P., is entirely satisfactory, but there seems to be no more reason for using whole drugs, and powdering them when the preparation is made than in simple tincture of cardamom.—*Ibid.*, v. 57, p. 1002.

Heinrich Haensel (Half-Yearly Report, April, 1909, p. 7) gives the following figures for cardamom oil, specific gravity 0.937, optical rotation  $+33.73^{\circ}$ ; and for terpeness cardamon oil, specific gravity 0.948, and optical rotation  $+45.93^{\circ}$ .

Diehl, C. L., reports from the committee on N. F. recommending a formula for compound spirit of cardamom, which he presents.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1085.

He also reports a formula for elixir cardamomi compositum.—*Ibid.*, p. 1061.

Remington, Joseph P., criticises the proposed formulas for compound spirit of cardamom, and compound elixir of cardamom, and expresses the belief that oil of cardamom of good quality is not to be obtained, and if it can be had pure it is difficult to keep.—Proc. Pennsylvania Pharm. Ass., 1909, pp. 257-258.

## CARUM.

Schamelhout, A., states that the Second International Congress for the Repression of Adulteration (Paris, 1909) adopted for caraway the note that commercial usages admit, according to the sources,

a tolerance of earthy or stony matters not exceeding 2 to 3 per cent.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 336.

Caesar & Loretz (Geschäfts Ber., 1909, p. 28) discuss the cultivation of caraway in Holland and point out that the available seed because of unfavorable weather conditions is rather dark and unsightly.

### CARYOPHYLLUS.

Woods, Charles D., defines cloves as the dried flower buds of *Caryophyllus aromaticus* L., which contain not more than 5 per cent of clove stems; not less than 10 per cent of volatile ether extract; not less than 12 per cent of quercitannic acid (calculated from the total oxygen absorbed by the aqueous extract); not more than 8 per cent of ash insoluble in hydrochloric acid; and not more than 10 per cent of crude fiber.—Rep. Maine Agric. Exper. Sta. (1909), 1910, Ap. p. 117.

An unsigned article points out that at the first forming of cloves they are white, then light green, and finally bright red when they are gathered.—Meyer Bros. Drug., St. Louis, 1909, v. 30, p. 130.

Gehe & Co. (Handelsbericht, 1909, pp. 57–58) present a table showing the production and export of cloves from Zanzibar.—See also Chem. & Drug., 1909, v. 75, p. 485.

Holmes, E. M., in discussing the materia medica of Perak, points out that the cloves (*Eugenia caryophyllata* Thunb.) are of inferior quality and dark color and frequently show a portion of pedicel attached to them.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 754.

Reich, R., reports a number of experiments which would indicate that the direct estimation of volatile oil in cloves by means of steam distillation is practical.—Ztschr. f. Unters. Nahr. u. Genussm., 1909, v. 18, pp. 401–412.

Hodgson, T. R., discusses the analysis of cloves and reports on 12 samples.—Am. J. Pharm., Phila., 1909, v. 81, pp. 6–9.

### CASSIA FISTULA.

Capps, Pratt, McCrae, and Halsey recommend the deletion of cassia fistula from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

### CATAPLASMA KAOLINI.

Schelenz, Hermann, presents a history of the medicinal earths and of cataplasma kaolini, and points out that in Germany a cataplasm of kaolin has been known and used for a long time.—Am. J. Pharm., Phila., 1909, v. 81, pp. 111–116.

Fussell, M. H., thinks that cataplasm of kaolin should be relegated to the National Formulary, or preferably dropped entirely, because of its being a palpable imitation of a widely advertised nostrum.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 205.

Herzfeld, A., considers the introduction of clay poultices into the official materia medica an ill-advised step. In many of the indications for which they have been advanced, clay poultices inhibit rather than promote progress to recovery.—*Am. Druggist*, N. Y., 1909, v. 54, p. 112. Also *Pharm. Era*, 1909, v. 41, pp. 180-181.

Diekman, George C., comments on the action of the U. S. P. revision committee in giving official standing to cataplasm of kaolin, which he believes to have some merit.—*Am. Druggist*, N. Y., 1909, v. 54, p. 112.

Beringer, George M., thinks the formula for cataplasma kaolini is not entirely satisfactory. The product is too firm and difficult to keep uniformly plastic.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 815.

Dunn, John A., presents a formula for cataplasm of kaolin in which glycerite of boroglycerin is directed in place of boric acid.—*Ibid.*, p. 944.

Mittelbach, Wm., thinks that the trouble arising from cataplasma kaolini is due to the difficulty of keeping it free from moisture.—*Ibid.*, p. 815.

Russow, Albert, discusses the production of an artificial cataplasm and outlines formulas and methods for making preparations of this kind.—*Pharm. Ztg.*, Berl., 1909, v. 54, p. 355.

Burnett, J. A., asserts that cataplasms of kaolin give very good results in most cases of rhus poisoning.—*Eclectic M. J.*, Cincin., 1909, v. 69, p. 189.

#### CERA ALBA.

Mittelbach, Wm., thinks the melting point of white wax is too high. He can not tell whether it is due to the process of bleaching or from action of the atmosphere.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 815.

The committee of reference in pharmacy asserts that as chemical methods of bleaching wax are now so commonly employed that comparatively little wax is bleached by other methods, white wax should be described as "yellow wax, bleached."—*Chem. & Drug.*, Lond., 1909, v. 74, p. 291.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 13) gives figures from 30 samples of chemically bleached wax as follows: Acid value 21.5 to 23; saponification value 96.5 to 100.8; specific gravity 0.963 to 0.969; melting point 62° to 64° C. Adulteration was detected in one case only: Acid value 12; saponification value 106; specific gravity 0.976; melting point 60° C.

Southall Bros. & Barclay (*Rep.* 1908-9, Birmingham, 1910, p. 7) report examining 7 samples of white beeswax in no case could any exception be taken to the quality of the wax. The figures were: Specific gravity 0.9639 to 0.9670; melting point 62° to 64°; acid value 19.94 to 24.03; saponification value 96.90 to 99.77.

## CERA FLAVA.

Beringer, George M., thinks that the official definition for yellow wax is faulty in several ways. A more correct definition would be "a natural concrete secretion forming the wall of the honeycomb of the hive bee," *Apis mellifica* Linné (Order Hymenoptera), purified after removing the honey, by melting with water, separating and straining.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 812.

The committee of reference in pharmacy presents a monograph which should be substituted for the present one.—Chem. & Drug., Lond., 1909, v. 74, p. 291.

Le Naour, P., comments on the fallacious test of the Ph. Fr. V for beeswax.—Ann. Chim. Analyt., 1909, v. 14, p. 369.

Ostrogovich and Petrisor (Bull. de Stiinte din Bucuresti through Apoth. Zeit.) have found a useful process for the detection of suet in beeswax. The reaction depends on the identification of glycerin which is absent in beeswax.—Drug. Circ., N. Y., 1909, v. 53, p. 629.

The Belgian inspectors of pharmacies report that yellow wax is rarely pure, especially in drug stores where sometimes pure ozokerite is sold. As to white wax, it is frequently rancid, mixed with suet, and even substituted by paraffin.—J. d. pharm. d'Anvers, 1909, v. 65, p. 549.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 12,) report on 106 samples of unrefined yellow beeswax. Very few cases of willful adulteration were observed, although much inert matter, such as stones, hair, and the like was found in certain grades. The reported factors varied as follows: Acid value, 18.2 to 21; saponification value, 91.7 to 97.3; melting point, 62° to 64° C.; specific gravity, 0.958 to 0.969. Adulterated: Acid value, 2.0 to 17.0; saponification value, 7.0 to 95.2; melting point, 35° to 64° C.; specific gravity, 0.915 to 0.964.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 7) analyzed 14 samples of yellow beeswax, normal results being obtained in every case; specific gravity, 0.9590 to 0.9675; melting point, 62° to 64° C.; acid value, 17.39 to 19.80; saponification value, 91.3 to 95.3.

The examination of drug samples in 1907 shows that of 45 samples of beeswax examined 4 were found adulterated or not up to standard.—Pharm. J., Lond., 1909, v. 28 (82), p. 182.

Clessler reports that in 2 samples of yellow wax the acid and ester numbers were low, indicating admixture of Carnauba wax.—Suedd. Apoth. Ztg., 1909, v. 49, p. 51.

**CERATA.**

[See also under the several drug headings.]

**CERATUM.**

Mittelbach, Wm., thinks the formula for cerate unsatisfactory, and that of 1880 and 1890 better. Yellow wax and lard in the proportion of half and half he believes would make an excellent cerate, and might possibly answer for unguentum too.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 816.

Guidry, A. J., reports that of 16 samples of cerate examined, one-half were found to be yellow, rancid, and full of lumps. He thinks this is too simple a preparation to present such conditions. One-half of the 22 samples of cerate of lead subacetate were found unfit for use, having deteriorated from age.—Proc. Louisiana Pharm. Ass., 1909, p. 57.

**CERATUM CAMPHORÆ COMPOSITUM N. F.**

Members of the Baltimore branch express the belief that a more permanent base, petrolatum being suggested, be used for compound camphor cerate N. F., as the product as now official becomes rancid.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 55.

**CERATUM RESINÆ.**

Mittelbach, Wm., thinks the formula for rosin cerate yields a fair product. He prefers the 1880 formula.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 816.

Schamelhout, A., states that the basilicon ointment of the Ph. Fr. V is prepared according to the formula of the old [Belgian] pharmacopœia, with a very slight difference in the proportions. The Ph. Belg. III has suppressed this medicament and preserved the veterinary basilicon ointment of which the composition is different and which is not included in the French Codex.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 73.

**CERATUM RESINÆ COMPOSITUM.**

Mittelbach, Wm., thinks the formula for compound rosin cerate yields a good preparation.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 816.

**CERII OXALAS.**

The committee of reference in pharmacy suggests that if cerium oxalate is retained, it is necessary to know whether pure cerium oxalate or the commercial salt containing indefinite quantities of lanthanum and didymium is required.—Chem. & Drug., Lond., 1909, v. 74, p. 291.

Stephens, A. F., asserts that cerium oxalate is an excellent remedy in those cases of pertussis where vomiting is a pronounced symptom.—Nat. Eclect. Med. Ass. Quart., 1909–10, v. 1, p. 126.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 157–158) calls attention to the work done by Baehr and Wessler in connection with the use of cerium oxalate and their conclusion that the action of cerium oxalate is purely mechanical, and that it is of use in the same way as bismuth subnitrate.

#### CETACEUM.

The committee of reference in pharmacy submits a revised monograph, to be substituted for the one at present official.—Chem. & Drug., Lond., 1909, v. 74, p. 291.

Branderhorst, H. C., reports a comprehensive examination of spermaceti including the melting point, congealing point, specific gravity, solubility, refraction, acid number, saponification number, iodine number, and the amount of unsaponifiable substances present.—Pharm. Weekblad., 1909, v. 46, pp. 1043–1051.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 53) report on 27 parcels of English and South American spermaceti; specific gravity 0.947 to 0.955; melting point 43° to 46° C.; saponification value 123 to 129.5.

Southall Bros. & Barclay (Rep. 1908–9, Birmingham, 1910, p. 17) examined a large number of samples of spermaceti and in no case were any abnormal results obtained; melting point 44° to 47° C.; saponification value 123.5 to 127.8.

#### CHARTA SINAPIS.

The committee of reference in pharmacy asserts that, if charta sinapis is retained, the formula must be revised.—Chem. & Drug., Lond., 1909, v. 74, p. 291.

Caldwell, Paul, asserts that mustard paper should be dropped, for the reason that the pharmacist has no more interest in it than an old maid in her birthday. This product is public property and the pharmacist need answer no questions in selling it.—Bull. Pharm., 1909, v. 23, p. 115.

#### CHIMAPHILA.

Fussell, M. H., in recommending the deletion of chimaphila from the Pharmacopœia, asserts that it would never be used to-day in nephritis.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 204.

Capps, Pratt, McCrae, and Halsey recommend the deletion of chimaphila from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

Holm, Theo., describes the various structural characteristics of *Chimaphila umbellata* (L.) Nutt.; he also describes and illustrates

the internal structure of the vegetative organs.—Merck's Rep., 1909, v. 18, pp. 143–145.

Soules, S. G., contributes a brief note on chimaphila in diabetes, recommending twice the dose which he had reported in a former communication.—N. York M. J., 1909, v. 89, p. 1147.

#### CHIRATA.

Fussell, M. H., in recommending that chirata be deleted from the Pharmacopœia, asserts that it is said to be used in Hindoostan. It does not maintain its reputation here.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 204.

Capps, Pratt, McCrae, and Halsey recommend the deletion of chirata from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

The committee of reference in pharmacy asserts that to the official description of "chirata" should be added: "The root is oblique."—Chem. & Drug, Lond., 1909, v. 74, p. 291.

#### CHLORALUM HYDRATUM.

The committee of reference in pharmacy asserts that an assay process is not necessary for chloral hydrate. The melting point, boiling point, and isonitrile test are being controlled.—Chem. & Drug, Lond., 1909, v. 74, p. 291.

Merck, E. (Darmstadt), commenting on the Ph. Fr. V requirement, that a recent aqueous solution of chloral, prepared in the cold, be neutral to litmus and should not be precipitated by silver nitrate, says these tests should be made with an alcoholic solution.—Bull. sc. pharmacol., Par., 1909, v. 15, p. 547.

Wheeler and Jordan present a continuation of their work on the condensation of chloral with primary aromatic amines.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 902. See also J. Am. Chem. Soc., 1909, v. 31, pp. 937–943, and paper by Diels and Seib, Ber. d. deutsch. chem. Gesellsch., Berl., 1906, v. 42, pp. 4062–4072.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 20) report on 7 consignments of hydrated chloral: Melting point 49.5 to 50.5° C. and the purity between 97 and 99 per cent. For the assay the iodometric method of E. Rupp (Analyst, 1903, 317) gives very good results if the chloral solution be mixed with the decinormal iodine before the addition of the alkali.

The Belgian inspectors of pharmacies report chloral hydrate as sometimes humid, deliquescent, and rose tinted. Certain samples are colored by concentrated sulphuric acid.—J. d. pharm. d'Anvers, 1909, v. 65, p. 588.

Members of the Baltimore branch express the belief that the ingredients of chloral camphoratum N. F. can be more easily powdered



by the use of chloroform than of alcohol, and suggest that the ingredients be liquefied without being powdered by warming in a closed bottle.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 55.

Earp (N. York M. J.) thinks that peppermint water is better than cinnamon water for improving the palatability of chloral hydrate.—*Meyer Bros. Drug.*, St. Louis, 1909, v. 30, p. 117.

Impens, E., criticizes the work done by Sollmann and Hatcher with chloral and isopral, and explains some of his own reported experiments.—*Arch. internat. d. pharmacol. et d. therap.*, 1909, v. 19, pp. 301–310.

An editorial (*Am. Vet. Rev.*, 1908–9, v. 34, pp. 289–292) discusses the use of hydrated chloral for the production of general anaesthesia in animals as described by Bernardini. See also *Vet. J., Lond.*, 1909, v. 65 (new series, v. 16), p. 51.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 159–161) reviews some of the recent literature relating to the use of hydrated chloral.

#### CHLOROFORMUM.

Robinson, Victor, contributes a historical note on Simpson and chloroform.—*Med. Rec., N. Y.*, 1909, v. 76, pp. 514–515.

Merck, E. (Darmstadt), notes that the *Chloroformium pro narcosi* of the Ph. Fr. V, pure chloroform with the addition of 0.5 per cent of absolute alcohol, is said to have a specific gravity of 1.498 at 15° C. This figure, however, indicates the specific gravity of pure chloroform with 0.25 per cent of alcohol. The chloroform with the addition of 0.5 per cent of alcohol has at 15° C. a specific gravity of 1.494.—*Bull. sc. pharmacol. Par.*, 1909, v. 16, p. 547.

Rusconi, Arnaldo, reports observations on the preservation of chloroform by means of ethyl alcohol.—*Arch. farmacol. sper.*, 1909, v. 8, pp. 157–158.

The committee of reference in pharmacy asserts that, as chloroform to which 2 per cent of ethyl alcohol has been added keeps practically indefinitely and under all conditions, this addition should be made. The specific gravity and boiling point of this mixture are being determined.—*Chem & Drug., Lond.*, 1909, v. 74, pp. 291.

Cross, W. Foster, is reported as asserting that chloroform made from ethyl alcohol, methylated spirit, and from acetone have distinctly different properties.—*Pharm. J., Lond.*, 1909, v. 29 (83), p. 660.

Fühner, H., discusses the reciprocal solubility influence in aqueous solutions of ether and chloroform.—*Ber. d. deutsch. chem. Gesellsch., Berl.*, 1909, v. 42, pp. 887–889.

The Belgian inspectors of pharmacies report that they found chloroform having a highly irritating odor which, nevertheless, con-

tained no hydrochloric acid nor free chlorine.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 588. See also *Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 260.

Gane and Webster discuss the determination of alcohol, ether and chloroform in pharmaceutical preparations.—*Merck's Rep.*, 1909, v. 18, p. 196.

Mossler, Gustave, reports observations on the decomposition of chloroform by means of alcoholic solutions of alkali hydrates.—*Ztschr. d. allg. österr. Apoth.-Ver.*, Wien., 1909, v. 47, pp. 1-3.

Gane and Webster assert that chloroform water should be made of definite strength, one-quarter or one-half per cent. The official instructions to always have an excess of chloroform present in the bottle are unwise and might prove dangerous.—*Drug. Topics*, New York, 1909, p. 341.

Diekman, George C., reports 316 samples of chloroform liniment examined by the eastern branch, 22 of which were below standard.—*Rep. New York Bd. Pharm.* (1909), 1910, p. 11.

Clapp, George W., warns against the use of chloroform, as an anæsthetic by dentists and asserts that chloroform is easily the most dangerous of the general anæsthetics in general use.—*Dental Digest*, 1909, v. 15, pp. 196-197.

McMechan, F. H., discusses the advantages of dropper ampoules in the production of chloroform narcosis.—*N. York M. J.*, 1909, v. 90, p. 109.

Nicloux, Maurice, contributes an article on the fate of chloroform in the organism.—*J. d. physiol. et d. pathol.*, 1909, v. 11, pp. 576-589.

Doyon, Gautier, and Policard report observations on hepatic lesions caused by chloroform anæsthesia.—*Compt. rend. Soc. Biol., Par.*, 1909, v. 66, pp. 27-28.

Somerville, T. C., reports 3 cases of delayed chloroform poisoning, fatal in each case.—*Lancet*, 1909, v. 177, p. 81. See also a report by W. H. Payne, of 3 cases somewhat similar, but not fatal (p. 187).

The *J. Am. M. Ass.* (1909, v. 53, p. 963) gives a list of articles on delayed chloroform poisoning, which have appeared since the beginning of 1907.

Demarest, Fred. F. C., claims that pure and fresh chloroform is the safest of all anæsthetics when properly administered by a careful and competent anæsthetist.—*Med. Rec.*, N. Y., 1909, v. 75, p. 493.

*E. Merck's Annual Report* (1909, Darmstadt, 1910, v. 23, pp. 161-163) in a review of recent literature relating to chloroform and its use, points out that anæsthetic chloroform is prepared in so pure a form to-day that the danger of toxic action has been reduced to a minimum, and with proper use may be applied with absolutely no danger to the life of the patient.

Additional references on the chemistry, pharmacology, toxicology, and uses of chloroform will be found in Index Medicus and J. Am. M. Ass.

#### CHONDRUS.

Tunmann, O., reports a study of the anatomy and composition of *Chondrus crispus*.—Apoth. Ztg., Berl., 1909, v. 24, pp. 151-154.

Posey, H. G., asserts that Irish moss gelatin could well be omitted from the N. F.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 988.

#### CHROMII TRIOXIDUM.

The committee of reference in pharmacy asserts that the present process for acidum chromicum is faulty. Work on the tests is now being carried out.—Chem. & Drug., Lond., 1909, v. 74, p. 288.

Merck, E. (Darmstadt), criticizes the requirements of the Ph. Fr. V with reference to alkaline salts in chronic anhydride and proposes a quantitative test.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 548.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 29) state that samples of the "purified" chromic acid have proved to contain from 77.5 to 84.9 per cent of  $\text{CrO}_3$ , in one case 11.34 per cent of sulphate, as  $\text{H}_2\text{SO}_4$  was present.

The Belgian inspectors of pharmacies report that chromic acid is frequently found debased by sulphuric acid.—J. d. pharm. d'Anvers, 1909, v. 65, p. 584. See also Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 234.

#### CHRYSAROBINUM.

The committee of reference in pharmacy asserts that as chrysarobin is a definite substance and one only of the several constituents of araroba, araroba purificata would be a better name for the drug. A monograph is submitted as a substitute for that at present official.—Chem. & Drug., Lond., 1909, v. 74, p. 291.

Mittelbach, Wm., states that the literature on chrysarobin seems to conflict somewhat; chrysophanic acid, a rare chemical, being sometimes held identical with the neutral principal chrysarobin, now official. He thinks this will be cleared up in the U. S. P. IX.—Proc. Missouri Pharm. Ass., 1909, p. 111.

Caldwell, Paul, points out that chrysarobin ointment has enjoyed an exclusiveness all its own because it is not suitable for an inflamed surface. The active principle typified by emesol is used extensively and might be incorporated, but not with a lard base.—Bull. Pharm., 1909, v. 23, p. 116.

Mittelbach, Wm., thinks that the formula for chrysarobin ointment is very satisfactory.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 817.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 164-166) quotes Wolters (Med. Klinik, 1909, p. 623) who has investigated the customary methods of external application of chrysarobin, and finds that, applied externally, it could not be regarded as poisonous.

#### CIMICIFUGA.

Capps, Pratt, McCrae, and Halsey recommend the deletion of *cimicifuga* and its several preparations from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

The committee of reference in pharmacy asserts that the test for tannin in *cimicifuga* should be made on an infusion of the drug, not upon the drug itself. The drug is not sufficiently potent to warrant the introduction of any attempt at assaying it.—Chem. & Drug., Lond., 1909, v. 74, p. 291.

Finnemore, Horace, reports on the constituents of the rhizome of *Cimicifuga racemosa*.—Pharm. J., Lond., 1909, v. 29 (83), pp. 145-146. See also Year-Book of Pharmacy, Lond., 1909, p. 265.

Caldwell, Paul, thinks that fluid extract of *cimicifuga* can be dropped from the U. S. P., for the reason that the tincture is used instead.—Bull. Pharm., 1909, v. 23, p. 115.

Dunn, John A., thinks that a menstruum of 60 per cent alcohol exhausts *cimicifuga* completely when the repercolation process is used.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 947.

The committee of reference in pharmacy asserts that the proportion of menstruum ordered to moisten Ext. *Cimicifugæ* Liq. should be reduced to 10 fluid ounces of alcohol to 20 ounces of the drug.—Chem. & Drug., Lond., 1909, v. 74, p. 292.

Cook, E. Fullerton, reports that a slight, readily mixed precipitate forms on standing in tincture of *cimicifuga*.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1002.

Diehl, C. L., reports from the committee on N. F. recommending a change in title to "Syrupus *Cimicifugæ* Compositus" and the omission of "Compound sirup of *cimicifuga* (or black cohosh)."—*Ibid.*, p. 1086.

Baker, V. A., suggests the use of *macrotys* (*Cimicifuga racemosa*) in the irritable bladders of either sex, and recommends it as a sexual tonic for both sexes.—Eclectic M. J., Cincin., 1909, v. 69, p. 246.

Howes, Pitts Edwin, asserts that the range of action of *cimicifuga* is extensive. It is essentially a cerebro-spinal remedy acting directly upon the brain and spinal cord.—J. Therap. & Diet., 1909-10, v. 4, pp. 73-75.

The Eclectic League for Drug Research presents the following as the most direct indications for *Cimicifuga racemosa*, commonly known as *macrotys*: (1) Myalgia and all painful muscular conditions

the result of improper excretion; (2) nervous conditions the reflex from certain muscular organs; (3) certain subacute nervous and mental states resulting from a disturbed circulation of the brain.—*Eclectic Rev.*, 1909, v. 12, p. 181.

### CINCHONA.

An unsigned contribution discusses the different commercial varieties of cinchona.—*Ann. d. pharm.*, Louvain, 1909, v. 15, pp. 398-406.

Goldsmith, E., presents some notes on the history and the origin of cinchona and the isolation of the contained alkaloids in a commercial way.—*J. Frankl. Inst.*, 1909, v. 167, pp. 90-98.

Judd, A. F., in connection with an exhibit of cinchona barks, points out that not one of the barks exhibited showed the official strength necessary to admit them into the country. He had endeavored to obtain certain information regarding the reasons for this by applying to the proper officials at Washington, and was simply amazed at the ignorance displayed by those whose duties require that they should know concerning the facts he wished to obtain.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 193.

Hartwich, C., in a discussion of the drugs from Bolivia, describes the cinchona barks, and illustrates some of the structural characteristics of cinchona and related barks.—*Schweiz. Wehnschr. f. Chem. u. Pharm.*, Zürich, 1909, v. 47, pp. 249-252.

Böhringer, Ch., reviews the progress that has been made in the cultivation of cinchona in Ceylon. He also quotes figures showing the development of cinchona cultivation in Java.—*Tropenpflanzer*, 1909, v. 13, pp. 269-274.

An unsigned article describes and illustrates the Java cinchona plantations and discusses their development by Dutch military pharmacists.—*Brit. & Col. Drug.*, 1909, v. 55, pp. 7-10.

An unsigned article comments on the agricultural report of Java, which contains a section of 78 pages dealing with the work of the cinchona plantations during the year.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 432. See also *Ibid.*, 1909, v. 75, p. 751.

An editorial calls attention to a fungoid disease which is attacking the cinchona trees in India and Java, and is similar to, or identical with, the disease that has worked havoc with other plants, particularly in coffee, nutmeg, and rubber plantations.—*Drug Topics*, New York, 1909, v. 24, p. 353.

Zimmermann, A., reports the results of the first cinchona harvest in Amani. The average content of alkaloid as quinine sulphate was 5.5 per cent, and the total yield was 403 kg.—*Pflanzer*, Tanga, 1909, v. 5, pp. 37-40.

An abstract (*Cultuurgids*, 1909, I, p. 892) asserts that the near future for cinchona plantations is not promising, as the production of this bark exceeds the demand at the present time.—*Ibid.*, v. 5, p. 189.

The committee of reference in pharmacy suggests that no change be made in the variety of cinchona bark for official use.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 291.

The *Bull. sc. pharmacol.* (Par., 1909, v. 16, pp. 521–528) publishes, from the documents of the Second International Congress for the Suppression of Adulterations (Paris, 1909), the classifications and definitions of the cinchonas of actual commerce.

Umney, J. C., points out that cinchona bark is extremely variable, the different species containing different proportions of alkaloids.—*Chem. & Drug.*, 1909, v. 75, p. 579.

van Leersum, P., discusses the requirements made by the Ph. Ndl. IV for cinchona bark; he also discusses the production of the drug in Java.—*Pharm. Weekblad.*, 1909, v. 46, pp. 833–838.

Gehe & Co. (*Handelsbericht*, 1909, pp. 61–63) discuss the production and uses of cinchona bark, and point out that despite the great reduction in price the annual consumption of cinchona and quinine has not increased materially.

An editorial (*Brit. & Col. Drug.*, 1909, v. 55, p. 58), commenting on the annual review of quinine and cinchona bark issued by Boehringer & Söhne, points out that while in 10 years the exports from Java have increased from 11,150,000 to 15,877,000 Amsterdam pounds, the imports into the United Kingdom have declined from 5,143,000 to 1,930,000 pounds.

Caesar & Loretz (*Geschäfts-Ber.*, 1909, pp. 76–79) discuss the assay of cinchona bark and point out that the U. S. P., the Ph. Germ., Ph. Belg., Ph. Austr., and Ph. Svec. require 5 per cent of alkaloids, while the Ph. Ndl. requires 6 per cent and the Ph. Helv., 6.5 per cent total alkaloids.

Kottenhoff, G., by combining the processes of the Ph. Belg. and the Ph. Helv. secures an assay for cinchona alkaloids which is more easy and exact.—*Bull. Soc. roy. d. pharm.*, Brux., 1909, v. 53, p. 134.

Parker, C. E., points out that in the official process for the assaying of cinchona, the amounts of drug and solvent mixture required are too large, and the amounts of acid and ether chloroform directed for shaking out are hardly adequate. He shook out with 4 more portions of acid, obtaining 0.5 and 0.14 per cent of alkaloid.—*Proc. Ass. Off. Agric. Chem.*, 1909, 26th Ann. Conv., pp. 194–195 (*Bull. Bur. Chem. U. S. Dept. Agric.*, 1910, No. 132).

Lyons, A. B., thinks that the U. S. P. plan of determining "total alkaloids" and "ether-soluble alkaloids" gives quickly as useful a valuation as any of the available methods. He thinks, however,



that the method for determining the ether-soluble alkaloids should be amended.—Proc. VIIth Internat. Cong. App. Chem., Sec. VIIIb., Pharmacy, 1909, London, 1910, p. 109. See also Am. Druggist, N. Y., 1909, v. 55, p. 367, and Proc. Am. Pharm. Ass., 1909, v. 57, p. 804.

Duncan, Wm., discusses the estimation of quinine in cinchona bark and the utilization of sodium sulphate as the precipitant.—Pharm. J., Lond., 1909, v. 28 (82), pp. 429-430.

Cohen, N. H., concludes that the method of Duncan can not be used for the estimation of quinine in bark, though it does suffice to give a rough idea of the quinine content of the drug.—Merck's Rep., 1909, v. 18, p. 198. Also Pharm. J., Lond., 1909, v. 28 (82), p. 670.

Dohme and Engelhardt think that the U. S. P. method for the assay of cinchona might very easily be improved, and review some suggestions that have been made for the assay of this drug.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 880-881.

Moerk, Frank X., discussing the alkaloidal assay of cinchona, points out that under quinine 125° C. is required to render the alkaloid anhydrous; in the cinchona assays 110° C. is specified for the same object; while in the assays of iron-quinine citrate and its soluble variety 100° C. is specified.—*Ibid.*, p. 925.

The committee on adulteration reports that the samples and shipments of cinchona bark during 1908 showed up very well. However, various samples with as low as 3 per cent of total alkaloids were submitted.—Proc. Maryland Pharm. Ass., 1909, p. 73.

Vanderkleed, C. E., reports 37 assays of cinchona, lowest 4.368, highest 10.948, total alkaloids; 34 above and 3 below standard.—Proc. Pennsylvania Pharm. Ass., 1909, p. 129.

Dohme and Engelhardt report that 2 samples out of 14 of red cinchona bark and 4 samples out of 16 of calisaya bark were rejected on account of the low percentage of alkaloids present. Two samples of the latter variety assayed as low as 2.9 and 3.7 per cent of total alkaloids.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 714.

Clessler reports 7 samples yielding 3.89 to 6.2 per cent alkaloids; he suggests that the official process does not give a full yield.—Suedd. Apoth. Ztg., 1909, v. 49, p. 51.

Rabe, Paul, presents a contribution to our knowledge of the cinchona alkaloids in which he discusses the cleaving of the ketones of cinchona bases.—Ann. d. Chem. Leipz., 1909, v. 365, pp. 353-365.

Pettit, H. M., presents a brief note on the cinchona alkaloids and their salts. He asserts that cinchonidine and cinchonine are but rarely used.—Proc. Missouri Pharm. Ass., 1909, pp. 111-113.

van Leersum, P., discusses the usefulness of the alkaloids of cinchona as a protecting agent for the plant.—Pharm. Weekblad., 1909, v. 46, pp. 369-376.

Caldwell, Paul, asserts that fluid extract of cinchona should be dropped, as the alkaloids are used instead.—Bull. Pharm., 1909, v. 23, p. 115.

The committee of reference in pharmacy states that the assay process of Ext. Cinchonæ Liq. should be replaced by that of Alcock, using a separating funnel instead of a bottle.—Chem. & Drug., Lond., 1909, v. 74, p. 292.

Schnabel discusses the several formulas that have been proposed for a liquid extract of cinchona. He concludes that a mixture of 5 parts hydrochloric acid, 5 parts of glycerin, 30 parts of alcohol, and 10 parts of water yields satisfactory results so far as the alkaloid content is concerned.—Apoth. Ztg., Berl., 1909, v. 24, p. 975.

Cook, E. Fullerton, reports that a brownish deposit separates from tincture of cinchona. This precipitate has little taste, and tends to form in clotted masses. Similar deposits from cinchona have been examined and are said to be "cinchonic red," mixed with small quantities of the alkaloid.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1002.

The Belgian inspectors of pharmacies report tincture of cinchona frequently too poor in alkaloids.—J. d. pharm. d'Anvers, 1909, v. 65, p. 624. See also Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 266.

Veley and Waller report a study on the action of cinchona alkaloids on muscle.—J. Physiol., Lond., 1909-10, v. 39, pp. xix-xxi.

#### CINCHONA RUBRA.

Peters, W., gives the moisture content of red cinchona as 6.74 to 8.09 per cent; the ash content of the air-dry drug as being 2.77 to 9.99 per cent; the ash content of the dried drug as 2.97 to 10.87 per cent and the color of the resulting ash as reddish gray to brownish.—Apoth. Ztg., Berl., 1909, v. 24, p. 537. See also Schweiz. Wchnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, p. 663.

Parker, C. E., in the referee report on the assaying of red cinchona, points out that cinchona alkaloids should be dried at a higher temperature than 70°, and probably higher than 110°, a suitable temperature would be 125°.—Proc. Ass. Off. Agric. Chem., 1909, 26th Ann. Conv., p. 194. (Bull. Bur. Chem., U. S. Dept. Agric., 1910, No. 132.)

Cook, E. Fullerton, reports that a brownish deposit separates from compound tincture of cinchona, not so heavy as in the plain tincture of cinchona but of the same character.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1002.

#### CINCHONIDINÆ SULPHAS.

Fussell, M. H., in recommending that cinchonidine sulphate be deleted from the Pharmacopœia, asserts that it has no value as



compared with the valuable quinine.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 204.

Capps, Pratt, McCrae, and Halsey recommend the deletion of cinchonidina from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

Elvove, Elias, in a report on the fixing power of alkaloids on volatile acids, and its application to the estimation of alkaloids with the aid of phenolphthalein or by the Volhard method, discusses the estimation of cinchonidine and reports a number of experimental results.—Bull. Hyg. Lab. U. S. P. H. & M.-H. S., 1909, No. 54, p. 14.

#### CINCHONINÆ SULPHAS.

Capps, Pratt, McCrae, and Halsey recommend the deletion of cinchoninæ sulphas from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

Rosengarten, George D., points out that it is stated that 1 part cinchonine sulphate is soluble in 69 parts of chloroform at 25° C., and further on there is a requirement that "if 1 part of the powdered salt be macerated with frequent agitation in 80 parts of chloroform, at ordinary temperature, it should be wholly, or almost wholly, dissolved (limit of quinine or cinchonidine sulphate)."—Am. Druggist, N. Y., 1909, v. 55, p. 366.

Elvove, Elias, in a report on the fixing power of alkaloids on volatile acids, and its application to the estimation of alkaloids with the aid of phenolphthalein or by the Volhard method, discusses the estimation of cinchonine and reports a number of experimental results.—Bull. Hyg. Lab. U. S. P. H. & M.-H. S., 1909, No. 54, p. 12.

#### CINNALDEHYDUM.

v. Soden, Hugo, thinks that the specific gravity of cinnamic aldehyde should be required to be from 1.054 to 1.056 and it should have an aldehyde content of from 98 to 100 per cent and be free from chlorine.—Pharm. Ztg., Berl., 1909, v. 54, p. 250.

Schimmel Co. (Semi-Annual Report, April, 1909, p. 101) in discussing the Ph. Svec. IX requirements for cinnamic aldehyde, report that they have observed this article with a specific gravity up to 1.058.

They also (*Ibid.*, April, 1909, p. 142) assert that cinnamic aldehyde is soluble to the extent of 30:100 of 70 per cent alcohol, 0.1:100 of glycerin, 1.5:100 (with opalescence) of paraffin oil, and in all proportions of 96 per cent alcohol and of olive oil.

Saalsbach, Louis, points out that despite the fact that cinnaldehyde constitutes from 70 to 80 per cent of oil of cinnamon, it is, nevertheless, an unsatisfactory substitute for the true oil, and a flavoring essence made therefrom is far inferior in odor and flavor to that made from oil of cinnamon.—Proc. Pennsylvania Pharm. Ass., 1909, p. 185. See also under *Oleum Cinnamomi*.

## CINNAMOMUM SAIGONICUM.

Perrot and Eberhardt present a paper, illustrated by several plates, on the cinnamons of Indo-China.—Bull. sc. pharmacol., Par., 1909, v. 16, pp. 573–578, 633–640.

Rosenthaler and Reis report a pharmacognostic study of Seychelle cinnamon and present an illustration of the structural characteristics of this drug.—Ber. d. pharm. Gesellsch., Berl., 1909, v. 19, pp. 490–496.

Cayla, V., treats exhaustively of the cinnamon tree, especially from the point of view of its distribution and cultivation. He considers in particular Chinese cinnamon and Ceylon cinnamon.—J. d'Agric. Trop., Par., 1909, v. 9, p. 164.

Rusby, H. H., thinks that Saigon cinnamon is merely a variety or form of cassia, and that the cassia bark of commerce is traceable to at least 9 different species of *Cinnamomum*. He suggests that the name and the description be modified so as to take in all sufficiently good forms of cassia bark.—Midl. Drug., 1909, v. 43, p. 689. Also Pharm. Era, 1909, v. 42, p. 634.

Woods, Charles D., defines ground cinnamon, ground cassia, as a powder consisting of cinnamon, cassia, or cassia buds, or a mixture of these spices, and contains not more than 6 per cent of total ash and not more than 2 per cent of sand.—Rep. Maine Agric. Exper. Sta. (1909), 1910, Ap. p. 117.

The Catalogue of Definitions adopted by the International Congress for the Suppression of Adulteration (Geneva, 1908) states that cinnamon is the bark coming from the stems of diverse plants of the genus *Cinnamomum* of the family Lauracæ. Ceylon cinnamon is the bark, rolled and deprived of its external layer by scraping, of *C. zeylanicum* Breyne. China cinnamon is produced by *C. cassia* Blume. It is much thicker and is presented in shorter tubes.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 235.

Caesar & Loretz (Geschäfts-Ber., 1909, p. 13) assert that the quality of Chinese cassia bark is generally quite inferior.

Knight, Henry G, reports 1 out of 6 samples of cinnamon as below standard.—Rep. Dairy, Food & Oil Com., Wyoming, 1909, pp. 77–112.

Fitz-Randolph, R. B., reports 253 samples of cinnamon examined, of which 4 were found to be adulterated. The adulterants were ground cocoanut shells and ground olive stones.—Rep. New Jersey Bd. Health (1909), 1910, p. 195.

Cook, E. Fullerton, reports that the formula for tincture of cinnamon is entirely satisfactory.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1002.

The Belgian inspectors of pharmacies report that certain tinctures of cinnamon do not have the desired savor; others are too poor in dry residue.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 624.

Schamelhout, A., remarks that the savor differs according as to whether the tincture is prepared with Saigon or Ceylon cinnamon.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 266.

#### CINNAMOMUM ZEYLANICUM.

Mittelbach, Wm., thinks that Ceylon cinnamon should be dismissed, and the Saigon directed for all official preparations.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 812.

Roeder, George, discusses the production of cinnamon in Ceylon and describes the method of harvesting the bark.—*Tropenpflanzer*, 1909, v. 13, p. 518.

Schamelhout, A., notes that while in France it is only Ceylon cinnamon which is official, in Belgium one may also use China cinnamon.—*Bull. Soc. roy. d. pharm. Brux.*, 1909, v. 53, p. 7.

The committee of reference in pharmacy asserts that the ash of cinnamon should not exceed 5 per cent.—*Chem. & Drug., Lond.*, 1909, v. 74, p. 291.

Patch, E. L., reports finding 6, instead of 4, per cent of ash in Ceylon cinnamon.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 732.

A committee of the *Syndicat général de la Droguerie française* states that tincture of cinnamon is not made turbid by the addition of its own volume of water, and asks that this be recognized by the *Codex*.—*Bull. sc. pharmacol., Par.*, 1909, v. 16, p. 289.

#### COCA.

A news note calls attention to an article in *Der Tropenpflanzer*, by Sperber, who discusses coca cultivation in Peru.—*Chem. & Drug., Lond.*, 1909, v. 75, p. 834.

Hartwich, C., in a discussion of the drugs from Bolivia describes the several varieties of coca and illustrates some of their structural characteristics.—*Schweiz. Wehnschr. of. Chem. u. Pharm., Zürich*, 1909, v. 47, pp. 193–199.

Sharp, Gordon, reviews the history of coca and cocaine, describes the custom of coca chewing and discusses the steps in the synthesis of the alkaloids of coca.—*Pharm. J., Lond.*, 1909, v. 28 (82), pp. 28–30, 117–118, 184–186. See also Spatula, 1908–9, v. 15, pp. 299–303.

Tunmann, O., reports a pharmacognostic study of *Erthroxylon coca* Lam. with special consideration of the alkaloid content.—*Chem. Ztg., Cothen*, 1909, v. 33, p. 1017.

Rusby, H. H., asserts that Truxillo and Huanco cocas should be under separate titles. The question of increasing the alkaloidal re-

quirement should also be investigated. A coca leaf will not yield so little as 0.5 per cent, unless it has suffered some damage that unfits it for use in preparations.—Pharm. Era, 1909, v. 42, p. 634. Also, Midl. Drug., 1909, v. 43, p. 689.

A definition for coca leaves proposed to the Second International Congress for the Suppression of Adulterations (Paris, 1909) is the leaves of *Erythroxylon coca* Lam. (*Linaceæ*) and their varieties; their characters are also given. A supplementary note distinguishes between the cocas of Bolivia and of Peru (*E. coca* var. *bolivianum* Burck, and var. *novogranatense* Morris) and states that the origin should be specified by the vendor.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 352. See also Chem. & Drug., Lond., 1909, v. 75, p. 682.

Umney, J. C., points out that at the present time much of the cultivated coca contains over 1 per cent of ether-soluble alkaloids.—Chem. & Drug., 1909, v. 75, p. 579.

The committee of reference in pharmacy offers a monograph for coca which is to replace that now official.—*Ibid.*, 1909, v. 74, p. 291.

Peters, W., gives the ash content of the dried coca as 7.18 to 8.11 per cent, and the color of the resulting ash as light gray to almost white.—Apoth. Ztg., Berl., 1909, v. 24, p. 537.

Cæsar & Loretz (Geschäfts-Ber., 1909, p. 89) present the Keller-de Jong method of assay for coca leaves.

Dohme and Engelhardt assert that the U. S. P. assay process for coca works well. They describe the Keller-de Jong method which they believe gives very good results.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 881.

Lyons, A. B., points out that the assay methods for coca are easy, but that standards are of little value, for the drug itself as well as its galenical preparations deteriorates rapidly.—Proc. VIIth Internat. Congress App. Chem., Sec. VIIIb., Pharmacy, 1909, London, 1910, p. 110. See also Proc. Am. Pharm. Ass., 1909, v. 57, p. 804.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 23) report assays of 2 consignments of Truxillo and 1 small parcel of Ceylon coca; ether soluble alkaloid in the former was 0.75 and 0.66, in the latter 1.2. The standard proposed at the White Cross Congress (0.3 per cent) is much lower than usually found.

Taylor, Augustus Carrier, asserts that elixir of coca N. F. is never used. The doctor writes for the fluid extract or for cocaine. If he wants a weaker preparation, he has it in the wine of coca, U. S. P., or the aromatic wine of coca N. F.—Pharm. Era, 1909, v. 41, p. 494.

Caldwell, Paul, asserts that fluid extract of coca should be dropped as the alkaloid (cocaine) is used instead.—Bull. Pharm., 1909, v. 23, p. 115a.

Dohme, A. R. L., as the result of a comprehensive investigation, states that fluid extract of coca deteriorates after one-half year,

though the tincture appears to stand very well.—*Proc. Maryland Pharm. Ass.*, 1909, p. 103.

Posey, H. G., asserts that aromatic wine of coca should be dropped, owing to its close similarity to vinum cocæ, U. S. P.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 997.

Diehl, C. L., reports from the committee on N. F. recommending the deletion of aromatic wine of coca.—*Ibid.*, p. 1093.

#### COCAINA.

Sharp, Gordon, discusses the composition of cocaine, the decomposition of cocaine and coca alkaloids, and the substitution compounds of cocaine.—*Pharm. J., Lond.*, 1909, v. 28 (82), pp. 184–186.

Gilling, Charles, comments on some of the statements made by Sharp regarding the relationship of cocaine to atropine, and discusses the constitution of atropine, the synthesis of ecgonine and the synthesis of cocaine.—*Ibid.*, pp. 355–356.

The committee of reference in pharmacy suggests that the melting point requirement for cocaine be revised.—*Chem. & Drug., Lond.*, 1909, v. 74, p. 292.

Riedel's *Berichte* (Berlin, 1909, p. xl) presents a monograph on cocaine, including an enumeration of its properties and a number of tests. The melting point is given as 98° C.

Merck, E. (Darmstadt), asserts that the Ph. Fr. V test relative to cinnamyl-cocaine and other organic impurities should be made more rigorous. Instead of one drop of a 1 per cent solution of potassium permanganate, a 0.1 per cent solution should be employed.—*Bull. sc. pharmacol., Par.*, 1909, v. 16, p. 547.

Dohme and Engelhardt report one shipment of cocaine hydrochloride showing an excess of isatropyl-cocaine.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 714.

Carter, Fred L., thinks that many of the wholesalers are not as careful, or as explicit in their instructions to their salesmen, as they should be regarding the sale of cocaine, and suggests that every house should keep a full record of the sales of cocaine, which record should be examined at least once a week by the proprietor or some head clerk.—*Proc. N. W. D. A.*, 1909, p. 45.

Grübler, M., reviews the literature relating to the decomposition of cocaine by heat.—*Pharm. Post., Wien*, 1909, v. 42, pp. 289–290.

Mittelbach, Wm., points out that the alkaloid cocaine is readily soluble in warm oleic acid; and the use of alcohol in the making of oleate of cocaine is therefore not necessary. Neither is the addition of olive oil necessary.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 816.

Wood (C. A.), Jackson, Schneideman, and Davis recommend that oleate of cocaine be dropped from the U. S. P.—*J. Am. M. Ass.*, 1909, v. 53, p. 793.

## COCAINÆ HYDROCHLORIDUM.

The committee of reference in pharmacy submits a monograph which should be substituted for the present one.—Chem. & Drug., Lond., 1909, v. 74, p. 292.

Runne, E., discusses the titration of cocaine hydrochloride for the purpose of determining the acid content, using phenolphthalein and Poirrier's blue as indicators.—Apoth. Ztg., Berl., 1909, v. 24, p. 663.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 29) usually find the melting point of cocaine hydrochloride to lie between 184° and 186°. A sample recently examined proved to melt almost sharply at 188.5°, and was perfectly satisfactory in other respects. It was considered of higher purity than that usually met with.

Cross, J. W., comments on the sterilization of cocaine solution by boiling, and asserts that at the present time many nurses and surgeons are freely boiling solutions of this kind without even finally adjusting the volume.—Pharm. J., Lond., 1909, v. 29 (83), p. 124.

Foster, John, discusses the sterilization of cocaine solutions by boiling, and reports that he has frequently had very imperfect anæsthesias, after the most careful technique, after boiling the cocaine solutions, whereas on other occasions the results were quite good.—*Ibid.*, p. 228.

An editorial (Therap. Gaz., 1909, v. 33, pp. 547-548) discusses the availability of local anæsthetics other than cocaine and presents a table, prepared by Le Brocq, showing the relative toxicity of the several available preparations for frogs, mice, and rabbits.

Seifert, Otto, in discussing the secondary action of cocaine hydrochloride expresses the belief that the untoward effects of this drug are no longer being reported.—Apoth. Ztg., Berl., 1909, v. 24, p. 26.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 167-170) reviews some of the recent literature relating to the use of cocaine, and calls attention to the work by Ritter (Berl. klin. Wchnschr., 1909, p. 1701) who has experimented with the intravenous use of cocaine as a general anæsthetic.

Additional references on the pharmacology and uses of cocaine and related compounds will be found in Index Medicus and J. Am. M. Ass.

## COCCUS.

Kebler, L. F., reports that black cochineal is occasionally weighted with black sand.—Am. J. Pharm., Phila., 1909, v. 81, p. 75.

Caesar & Loretz (Geschäfts-Ber., 1909, p. 76) point out that for the valuation of cochineal they require the moisture content, the determination of the ash content, and the determination of the tincorial power. For the latter they outline a method of procedure. They also note that the Ph. Germ. permits the presence of 5 per cent

of ash, while the Ph. Helv. and the U. S. P. permit as high as 6 per cent.

#### CODEINA.

The committee of reference in pharmacy recommends that "dried on a water bath it melts at 155 to 156° C.," be added to the characters of "codeina."—Chem. & Drug., Lond., 1909, v. 74, p. 292.

Knorr and others present contributions to our knowledge of the chemistry of codeine.—Ann. d. Chem., Leipz., 1909, v. 368, pp. 305-323 and Ber. d. deutsch. chem. Gesellschaft, Berl., 1909, v. 42, pp. 3503.

Dunlap, Renick W., reports 3 samples of codeine examined, 2 not passed.—Rep. Ohio Dairy & Food Com., 1909, p. 59.

Wetterstroem, Theo. D., presents a report on the condition of codeine tablets on the market in July, 1909, and the analytical data on 15 samples examined by him.—Midl. Drug., 1909, v. 43, p. 329. Also Proc. Ohio Pharm. Ass., 1909, p. 63.

Thurston, Azor, reports that samples of codeine tablets claimed to contain 0.25 grain contained only 0.15 grain.—Midl. Drug., 1909, v. 43, p. 454.

The disciplinary committee of the Syndicate of Pharmacists of the Department of the Seine proposes a method for the assay of syrup of codeine.—J. d. pharm. et d. chim., Par., 1909, v. 30, pp. 491-493.

#### CODEINÆ PHOSPHAS.

Smith, Otis W., asserts that codeine phosphate is but rarely used.—Proc. Missouri Pharm. Ass., 1909, p. 113.

Mittelbach, Wm., suggests that codeine hydrochloride be added to the official salts. He believes it to be more extensively used than the phosphate.—Proc. Missouri Pharm. Ass., 1909, p. 110.

Düsterbehn points out that the Ph. Fr. V requires that codeine phosphate be soluble in 3.5 parts of water, and that the Ph. Germ. IV requires that it dissolve in 3.2 parts of water.—Apoth. Ztg., Berl., 1909, v. 24, p. 228.

Runne, E., discusses the titration of codeine phosphate for the purpose of determining the acid content, using phenolphthalein and Poirrier's blue as indicators. He concludes that codeine while not fully satisfactory can nevertheless be titrated by the use of Poirrier's blue as indicator.—Apoth. Ztg., Berl., 1909, v. 24, p. 663.

#### CODEINÆ SULPHAS

Riedel's Berichte (Berlin, 1909, p. xli) presents a monograph on codeine sulphate, including an enumeration of its properties and a number of tests.

Thurston, Azor, concludes from his examination of a few samples of codeine sulphate tablets that considerable work should be done along this line. In 2 samples of codeine sulphate tablets, claimed to contain 0.50 grain, he found 0.19 and 0.21 grain.—*Midl. Drug.*, 1909, v. 43, p. 454.

#### COLCHICI CORMUS.

Sharp, Gordon, presents a review of the history of colchicum, its introduction, chemistry, and uses.—*Pharm. J.*, Lond., 1909, v. 29 (83), pp. 5-6.

The committee of reference in pharmacy asserts that, in accordance with the decision in the international agreement, colchici cormus should be omitted.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 292.

Rusby, H. H., thinks that there should be a change in the alkaloid requirement for colchicum.—*Midl. Drug.*, 1909, v. 43, p. 689. Also *Pharm. Era*, 1909, v. 42, p. 634.

Parker, C. E., in the referee report on the assaying of alkaloidal drugs, points out that notwithstanding the purification of the alkaloidal residue as directed by the U. S. P. method, the final residue was found in some cases to be slightly contaminated.—*Proc. Ass. Off. Agric. Chem.*, 1909, 26th Ann. Conv., p. 195 (*Bull. Bur. Chem.*, U. S. Dept. Agric., 1910, No. 132).

Gane and Webster outline a method of assay for colchicum corm.—*Drug Topics*, New York, 1909, v. 24, p. 229.

Caesar & Loretz (*Geschäfts-Ber.*, 1909, pp. 103-105) describe the Keller-Panchaud method of assay for colchicum.

Dohme and Englehardt assert that the U. S. P. process for the assay of colchicum and the preparations thereof does not yield the proper amount of colchicine, and that the alkaloid is always contaminated with some foreign, especially some fatty and waxy, matter and the results consequently are too high.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 881.

Lyons, A. B., discusses the assay of colchicum and calls attention to a number of suggestions that have been made in this connection.—*Ibid.*, pp. 804-806. See also *Proc.*, VIIth Internat., Congress App. Chem., Sec. VIIIb, Pharmacy, 1909.

Roberts, John G., thinks that the assay for colchicum corm and colchicum seed represent samples of needless waste in that we have an excess of 9 cc. and if a duplicate is made, an excess of 18 cc. which is wasted.—*Merck's Rep.*, 1909, v. 18, p. 204.

Dohme and Englehardt report that 2 out of 15 samples of colchicum root did not meet the alkaloidal strength required by the U. S. P.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 714.

Vanderkleed, C. E., reports 7 assays of colchicum corm, lowest 0.240, highest 0.548 per cent, colchicine; 6 above and 1 below standard.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 129.



Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 24) report 2 consignments of colchicum corm assayed for colchicine by the U. S. P. process: English, 0.76; foreign, 0.72 per cent colchicine.

The committee of reference in pharmacy points out that in accordance with the international agreement Ext. colchici should be made from the seeds instead of the corm. Experiments have shown that 50 per cent alcohol is a suitable menstruum. Standardization experiments are in process.—Chem. & Drug., Lond., 1909, v. 74, p. 292.

Dunn, John A., recommends the use of 10 per cent acetic acid instead of 6 per cent acetic acid for the extraction of the drug, for the reason that less menstruum is required and the resultant product, while identical therapeutically, makes a smoother and nicer extract.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 946.

Howes, Pitts Edwin, asserts that colchicum is indicated in gouty or rheumatic diathesis. The pains are sharp and shooting, passing from the back to the hip and thence down the leg, and in most cases follow the course of the nerves.—J. Therap. & Dietet., Boston, 1908-9, v. 3, p. 216.

Abbott, Solon, asserts that colchicum is indicated in cases of rheumatism with burning, tearing or jerky pains, shifting, without swelling or redness, or pale swelling, constant chilliness, with short flushes of heat, dry skin, or profuse sweat suddenly breaking out and then disappearing.—*Ibid.*, p. 204.

Barton, Wilfred M., asserts that to state that colchicum cures gout is to utter a widely disseminated and influential belief. He discusses the pharmacology of colchicum and concludes that it may be placed in that large and ever-growing class of drugs of doubtful and uncertain utility.—J. Am. M. Ass. 1909, v. 52, p. 1559.

#### COLCHICI SEMEN.

The committee of reference in pharmacy asserts that colchici semina should be standardized to contain not less than 0.5 per cent of colchicine, when tested by the method given.—Chem. & Drug., Lond., 1909, v. 74, p. 292.

Judd, A. F., reports having examined a small quantity of colchicum seed, which had been purchased under a guaranty of purity and strength, and which was found to contain fully 50 per cent of powdered foenugreek seed.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 193.

Dohme and Engelhardt report that 20 out of 29 samples of colchicum seed contained less colchicine than required, same yielded 0.11, 0.12, and 0.24 per cent of colchicine. They report that the assay processes for colchicum root and seed as given by the U. S. P. are not reliable and should be revised.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 714.

Vanderkleed, C. E., reports 4 assays of colchium seed, lowest 0.490, highest 0.840 per cent colchicine; all above standard.—Proc. Pennsylvania Pharm. Ass., 1909, p. 129.

Caldwell, Paul, asserts that fluid extract of colchicum seed should be dropped, as the alkaloid is used instead.—Bull. Pharm., 1909, v. 23, p. 115.

Gane and Webster point out that the statement appearing in many text books that colchicum seed can be extracted equally well in whole and in powdered forms is found in practice to be erroneous. They comment on the nature of the extracts and discuss their assay.—Drug Topics, New York, 1909, v. 24, pp. 228-229.

Beringer, George M., thinks that the word "seed" is unnecessary in the title "Tincture of colchicum seed."—Proc. Am. Pharm. Ass., 1909, v. 57, p. 819.

Cook, E. Fullerton, reports that a slight, readily shaken up precipitate forms in tincture of colchicum seed U. S. P.—*Ibid.*, p. 1002.

Lyons, A. B., notes the inconsistency of making tincture of colchicum from the drug, involving the necessity of assaying the product, while the wine is made from a standardized fluid extract, so that no assay is needed. He contends that it is economy to make tinctures in all cases from standardized fluid extracts rather than from drugs.—*Ibid.*, p. 819.

#### COLCHICINA.

Merck, E. (Darmstadt), criticizes the melting point (145° C.) of colchicine as given by the Ph. Fr. V. The melting point of this substance is very indefinite; at about 120° C. it is soft; if the temperature be raised to about 135° C. it is partially liquefied; it is only at about 150° C. that the substance is totally melted. The Ph. Fr. V states that the aqueous solution is slightly alkaline to litmus, he finds it neutral; that on heating such a solution with iron perchloride it takes on a dark green color, he finds it dark brown; with concentrated nitric acid, instead of a violet passing into an indigo blue color, he finds it passes into a red brown.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 548.

#### COLLODIA.

Piest, C., presents a comprehensive study of the nitration of cotton and concludes that the solubility of nitrocellulose in ether alcohol depends largely on the preliminary treatment accorded to cotton before nitration.—Ztschr. f. ang. Chem., 1909, v. 22, p. 1224.

Taylor, Augustus Carrier, points out that there are 4 collodions in the Pharmacopeia and 4 in the Formulary. They should all be in the Formulary.—Pharm. Era, 1909, v. 41, p. 493.

The committee of reference in pharmacy submits a formula for a preparation which should replace both the collodions at present official, as it gives a more firmly adherent elastic film.—Chem. & Drug., Lond., 1909, v. 74, p. 292.

#### COLLODIUM.

Rosengarten, George D., points out that complaints are frequently filed in regard to U. S. P. collodion containing 40 gm. of pyroxylin in 1,000, instead of 30 gm. as required in the 1890 Pharmacopœia.—Merck's Rep., 1909, v. 18, p. 336. Also Am. Druggist, N. Y., 1909, v. 55, p. 366.

Dunn, John A., recommends reducing the amount of pyroxylin 50 per cent in the formula for collodion; he thinks the resulting preparation is more contractile.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 944.

The committee of reference in pharmacy presents a formula for an acetone collodion.—Chem. & Drug., Lond., 1909, v. 74, p. 292.

Dohme and Engelhardt report several shipments of collodion that did not come up to the required 40 per cent of pyroxylin.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 714.

#### COLLODIUM CANTHARIDATUM.

The committee of reference in pharmacy asserts that as it is proposed to make the Ph. Brit. collodium vesicans from a colorless blistering liquid, it should be colored to distinguish it from collodion. Cochineal is recommended as the coloring agent.—Chem. & Drug., Lond., 1909, v. 74, p. 292.

#### COLLODIUM FLEXILE.

Beringer, George M., thinks the Canada turpentine, in the formula for flexible collodion, should be omitted. The castor oil is sufficient to render the film elastic, and the addition of 2 per cent of camphor will add to its strength.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 818.

Dunn, John A., recommends omitting Canada turpentine in flexible collodion and presents a formula in which the castor oil is increased to 50 cc.—*Ibid.*, p. 944.

Schamelhout, A., notes that the French collodion contains 5 per cent pyroxylin and 20 per cent alcohol, while the flexible collodion contains 5 per cent castor oil; the Belgian product which corresponds with the latter contains 6 per cent castor oil and only 4 per cent pyroxylin and 10 per cent alcohol.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 9.

## COLLODIUM SALICYLATUM COMPOSITUM N. F.

Members of the Baltimore branch, in discussing *collodium salicylatum compositum*, suggest that fluid extract of *cannabis indica* be used to replace the extract, as it is more easily incorporated.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 55.

Dunn, John A., makes a similar suggestion.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 954.

## COLOCYNTHIS.

The committee of reference in pharmacy submits a monograph for *colocynthisidis pulpa* which should be substituted for the one at present official.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 292.

Grimaldi and Prussia report an examination of the fixed oil of *colocynth* seed.—*Boll. chim. farm.*, Milan, 1909, v. 58, p. 95. See also *Chem. Ztg.*, Cöthen, 1909, v. 33, p. 1239.

Wiley, H. W., asserts that *colocynth* is one of the drugs most commonly adulterated. Some of the *colocynth* now on the market is either a mixture of pulp and seeds or consists largely of the seeds themselves.—*Ann. Rep. U. S. Dept. Agric.* for 1909, 1910, p. 430.

Rusby, H. H., asserts that the practice of grinding up the seed with the pulp of *colocynth* has been common, though there is not a single argument, scientific or practical, that can be advanced in its favor.—*Midl. Drug.*, 1909, v. 43, p. 689. Also, *Pharm. Era*, 1909, v. 42, p. 634.

Kebler, L. F., calls attention to 3 samples of *colocynth*, one of which consisted entirely of seeds, another of pulp and seeds, while the third complied with the requirements of the U. S. P. He asserts that *colocynth* preparations made from *colocynth* seeds, instead of *colocynth* pulp, are worthless so far as any laxative value is concerned.—*Am. J. Pharm.*, Phila., 1909, v. 81, p. 76. See also *Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 20.

Fussel, M. H., thinks that compound extract of *colocynth* should be relegated to the National Formulary.—*Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, p. 205.

The committee of reference in pharmacy recommends reducing the quantity of soap in compound extract of *colocynth*.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 292.

The Belgian inspectors of pharmacies report extract of *colocynth* poorly preserved, spoiled by moisture.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 624. See also *Bull. Soc. roy. d. pharm.*, Brux., 1909, v. 53, p. 267.

Venturoli and Veroi publish a note on a chemico-toxicologic study of *colocynth*.—*Boll. chim. farm.*, Milan, 1909, v. 58, pp. 713-717.

Magnus, R., in a general discussion of the influence of drastic cathartics, comments more particularly on the action of colocynth and its property of increasing intestinal peristalsis.—*Therap. Monatsh.*, Berl., 1909, v. 23, pp. 656-657.

Curryer, W. F., asserts that colocynth is perhaps not in such general use with Eclectics as with Homœopaths. Still it is an agent of such value that it should be available in the treatment of diseases of the alimentary canal. In intestinal colic we have in this remedy one of the most prompt and energetic in the materia medica.—*J. Therap. & Diet.*, 1909-10, v. 4, p. 397.

Howes, Pitts Edwin, asserts that colocynth is indicated when your patient tells you that his limbs feel as if they were bruised and that the pain is more severe when he walks.—*Ibid.*, 1908-9, v. 3, p. 216.

### CONIUM.

Schneider, Albert, points out that hemlock is a weed that will thrive anywhere. It is grown much like dill, caraway, anise, and related plants and has escaped from cultivation.—*Pacific Pharmacist*, 1909-10, v. 3, p. 192.

Lyons, A. B., thinks that conium is practically obsolete. If its effects are desired they can best be obtained by the use of a salt of the alkaloid.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 806.

Dohme and Engelhardt think there is very little use of conium and its preparations, and point out that Umney and Bennet consider the U. S. P. assay process not at all satisfactory.—*Ibid.*, p. 882.

Moerk, Frank X., discussing the alkaloidal assay of conium, points out that under the drug alcohol, while under the fluid extract absolute alcohol, is directed for the separation of the ammonium sulphate.—*Ibid.*, p. 925.

The committee of reference in pharmacy asserts that Farr and Wright's 1904 assay process, using 90 per cent alcohol in the place of 70 per cent, for conium, should be adopted.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 292.

Dilling, Walter J., reports observations on the isolation of conium alkaloids from animal tissues and the action of living cells and decomposing organs on these alkaloids.—*Biochem. J.*, Liverpool, 1909, v. 4, pp. 286-299. See also for a summary of the chemical reactions of coniine *Pharm J.*, Lond., 1909, v. 29 (83), pp. 34-37, 70-72, 102-104.

He reviews some of the recent observations and experiments made on the synthesis of conium alkaloids.—*Pharm. Zentralb.*, 1909, v. 50, p. 915.

Riedel's *Berichte* (Berlin, 1909, p. xli) presents a monograph on coniine hydrochloride, including an enumeration of its properties and a number of tests. The melting point is given as 220° C.

Vanderkleed, C. E., reports one assay of conium fruit 0.642 per cent coniine.—Proc. Pennsylvania Pharm. Ass., 1909, p. 129.

Caldwell, Paul, asserts that fluid extract of conium should be dropped, as the alkaloid is used instead.—Bull. Pharm., 1909, v. 23, p. 115.

Leming, W., asserts that conium has long been known as a remedy for cancer, especially as relieving the sharp, cutting pains. The particular field of action of conium has seemed to be the brain, breasts, and abdominal organs, although it has not been thoroughly proved in its effects on the pneumogastric nerve.—J. Therap. & Diet., 1909-10, v. 4, pp. 123-124.

### CONVALLARIA.

Fleury, E., thinks that Ph. Fr. V should be more specific in its designation of the parts of the plant, convallaria, to be used.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 461.

Houghton and Hamilton in a paper on the pharmacological assay of heart tonics, report a number of assays, and outline standards for the fluid extract and rhizome and roots of convallaria.—Am. J. Pharm., Phila., 1909, v. 81, p. 472. Also, Proc. Am. Pharm. Ass., 1909, v. 57, pp. 784-785.

Riedel's Berichte (Berlin, 1909, p. xli) presents a monograph on convallamarin, including an enumeration of its properties and tests.

La Franca, S., reports research to determine the influence of strychnine and of the active principle of convallaria on the normal and degenerated heart.—Arch. farmacol. sper., 1909, v. 8, pp. 316-344.

An editorial note (Critic & Guide, 1909, v. 12, p. 106) asserts that convallaria is a cardiac tonic. It contains two active principles: Convallamarin and convallarin. The first is the cardiac principle, the second possesses only cathartic and emetic properties.

### COPAIBA.

Hartwich, C., in an article on the drugs of Bolivia, describes the copaiba obtained from that section of South America, and illustrates the method of collecting it.—Schweiz. Wchnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, pp. 378-380.

The definition for copaiba, proposed to the Second International Congress for the Repression of Adulteration (Paris, 1909) is: An oleoresin secured by incision of different species of trees of the genus *Copaifera* (*C. officinalis* L., *C. langsdorffi* Desf., *C. coriacea* Mart., *C. guianensis* Desf., *C. multijuga* Hayne, etc.), imported under the names of Maranhão, Angostura, Maracaibo; the characters are also given.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 354.

Schamelhout, A., states that this definition was referred to a future congress in view of the uncertainty which prevails as to the

origin of the commercial balsams.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 337.

He also calls attention to the characters of *Para copaiba*, which in French commerce is exclusively employed in making capsules, and notes that the limits of density of the Ph. Belg. are too wide, 0.980 to 0.990.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 170.

Umney, J. C., asserts that *Para balsam* rarely falls below 0.920, while the pharmacopœial standards, recognizing the greater value of the resin than the oil, vary from 0.940 for the lowest limit in the French Pharmacopœia, to 0.995, the highest limit of the U. S. P.

Caesar & Loretz (Geschäfts-Ber., 1909, p. 72) present a monograph on *copaiba* in which they enumerate the several requirements that should be made of this drug, and also compare the specific gravity requirements of eight of the leading pharmacopœias. They give the limit of specific gravity as varying from 0.970 to 0.990 at 15° C.

Kline, C. M., says that *copaiba* is regularly quoted in New York at less than the cost of the crude drug as imported, which has to be cleaned before it is in condition for dispensing. The standards as laid down by the U. S. P. and for that matter any other published standards, present no obstacles to foreign dealers who apparently surpass nature and produce an article at much below the price of pure *copaiba*.—Proc. N. W. D. A., 1909, p. 122.

Wiley, H. W. (Lancet, 1909, v. 176, p. 212), is quoted as authority for the statement that the modified test for detecting *Gurjun balsam* in *balsam copaiba* is so inexact as to permit the adulteration of the latter with at least 35 per cent of the former without the possibility of detection.

The A. Ph. A. committee on drug market asserts that the African *copaiba* is being imported in large quantities, mainly for the purpose of extending the South American product. Its physiological action is apparently similar to that of South American *copaiba*, and the committee thinks it might be well to include the plant from which it is derived among the sources of the official article.—Drug Topics, New York, 1909, v. 241, p. 358.

Lehn & Fink (Annual Report for 1909, pp. 11–23) point out that products offered as *copaiba*, consisting wholly or in part of the so-called African balsam, rarely fail to meet in every particular the U. S. P. tests under *copaiba*; genuine South American *copaiba*, however, must frequently be condemned, if judged by the same criteria.

Rusby, H. H., thinks that the literature on the subject of African *copaiba* goes to show that it is quite different from the American and unfit for use.—Midl. Drug, 1909, v. 43, p. 690. Also, Pharm. Era, 1909, v. 42, p. 634.

Francis, J. M., reports a number of samples of *balsam copaiba* examined which did not exactly meet the pharmacopœial require-

ments. Many of these have been quite low in specific gravity, several deficient in acid tests. He does not know whether this state of affairs is due to the high price of the genuine balsam of copaiba and consequent sophistication, or to the fact that some of the specifications of the Pharmacopœia are incorrect.—Proc. Pennsylvania Pharm. Ass., 1909, p. 123.

Vanderkleed, C. E., quotes Schimmel's Report, April, 1909, as saying that, according to Utz, only the test of Dodge and Olcott and Turner's test yield unimpeachable results.—*Ibid.*, p. 123.

Schamelhout, A., commenting on the discussion of balsam of copaiba (Semi-Ann. Rep. Schimmel & Co., April, 1909, p. 41) states that the Ph. Belg. III does not give the color reaction, and he cites the method proposed by the third section of the Second International Congress for the Repression of Adulteration.—Bul. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 201.

Lehn & Fink report on 7 lots of Maracaibo copaiba with specific gravity, 0.962 to 1.002; resin, 52.5 to 67.5; acid resin, normal. Para copaiba, 3 lots: Specific gravity, 0.943 to 0.962; resin, 39 to 54.5; acid resin low.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 732.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 26) report 5 of the 70 samples examined to be adulterated.

Southall Bros. & Barclay (Rep. 1908-9, Birmingham, 1910, pp. 10-11) report that many samples of copaiba passed through their hands in the two years, and of these several have been sorted out on account of giving pronounced color reactions by the official tests. They also call attention to the valuable confirmatory results afforded by the application of the "Resin acid factor" test, outlined by them in their report No. 12, p. 14.

The Belgian inspectors of pharmacies state that balsam of copaiba is falsified with Gurjun balsam and sometimes by the oil, especially the balsams in capsules.—J. d. pharm. d'Anvers, 1909, v. 65, p. 549.

Earp (N. York Med. J.) asserts that next to copaiba in gelatin capsule form an emulsion flavored with wintergreen is the best way of improving its palatability.—Meyer Bros. Drug., St. Louis, 1909, v. 30, p. 117.

Wilks, Samuel, has found resin of copaiba to be an excellent remedy in hepatic dropsy and regrets that it has not found its way into the Pharmacopœia.—Folia Therap., Lond., 1909, v. 3, p. 101.

#### CORIANDRUM.

Schamelhout, A., states that the Second International Congress for the Repression of Adulteration (Paris, 1909) adopted for coriander the note that commercial usages admit, according to the sources, a tolerance of earthy or stony matters not exceeding 2 to 3 per cent.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 336.



## CREOSOTUM.

The committee of reference in pharmacy submits a monograph for creosotum as a substitute for the one at present official.—Chem. & Drug., Lond., 1909, v. 74, p. 292.

A committee of the Syndicat général de la Droguerie française declares that no creosote responding to the requirements of the Codex is to be found.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 288.

Poulenc Frères state that they have not found creosote distilling in the desired proportions between the temperatures indicated by the Ph. Fr. V.—*Ibid.*, p. 409.

Dohme and Engelhardt recommend a revision of the U. S. P. tests for beechwood creosote, as with the test outlined in the present U. S. P. spurious products may escape.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 714.

The Belgian inspectors of pharmacies report that creosote sometimes has a too low specific gravity, indicating a weak guaiacol content. Certain creosotes, employed against dental caries, contain a large proportion of phenic acid.—J. d. pharm. d'Anvers, 1909, v. 65, p. 586.

Schamelhout, A., remarks that there can be only one kind of creosote.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 238.

Gane and Webster assert that creosote water is not an elegant pharmaceutical triumph, and no one would disapprove if this also were among the missing. Creosote is given nowadays in capsules.—Drug Topics, New York, 1909, v. 24, p. 341.

An abstract (Rev. Trimestr. Suisse d'Odontol.) points out that the best method of removing the disagreeable odor of creosote from the hands is to wash them in a solution of linseed meal.—Dental Cosmos, Philadelphia, 1909, v. 51, p. 269.

Robinson, Beverley, contributes a brief note on the creosote treatment of pulmonary tuberculosis, which he thinks of great value as a preventive.—Med. Rec., N. Y., 1909, 76, p. 855.

## CRESOL.

Dorset, M., discusses the available forms of cresol, and the advantages and disadvantages of cresol and its preparations as disinfectants.—Spatula, 1908-9, v. 15, p. 238.

Düsterbehn points out that the Ph. Fr. V specifically requires that cresol consist of a mixture containing 25 per cent *o*-, 40 per cent *m*-, and 25 per cent *p*-cresol and that these constituents distilled between 185° and 205°, have a specific gravity of about 1.045, and be soluble in 45 to 50 parts of cold water.—Apoth. Ztg., Berl., 1909, v. 24, p. 228.

Pearson, W. A., reports two samples of cresol with specific gravity of 1.040, another of 1.031, another 1.034. The U. S. P. demands a specific gravity of 1.036 to 1.038 at 25° C.—Proc. Pennsylvania Pharm. Ass., 1909, p. 179.

Riedel's *Berichte* (Berlin, 1909, p. xlii) presents a monograph on metacresol, including an enumeration of its properties and a number of tests. The specific gravity of this article is given as 1.040. See also under *Liquor Cresolis Compositus*.

#### CRETA PRÆPARATA.

Alcock, F. H., points out that much of the precipitated calcium carbonate obtained is of inferior quality, and some samples that have been brought to his attention have fallen as low as 93.8 per cent of calcium carbonate, calculated on the dry sample.—Pharm. J., Lond., 1909, v. 29 (83), p. 750.

#### CUBEBA.

Umney, J. C., asserts that the proposed White Cross Society standards require that cubebs should not yield less than 10 per cent of "essential oil," when treated with ether and dried on a water bath to constant weight, a comparatively low figure, the average yield of oleoresin (not oil alone) being 20 per cent.—Chem. & Drug., 1909, v. 75, p. 579.

The committee of reference in pharmacy asserts that the words, "sometimes depressed at the base," in connection with cubebs, should be omitted, as they refer to immature fruits. This drug should yield not less than 20 per cent of oleoresin to ether (sp. gr. not over 0.720) and not more than 7 per cent of ash.—*Ibid.*, 1909, v. 74, pp. 292.

Rusby, H. H., asserts that large quantities of cubeb, quite unfit for medicinal preparations, are being imported, ostensibly for technical use. He thinks the powder should be carefully defined and so described as to exclude the stalks and overripe fruits.—Midl. Drug., 1909, v. 43, p. 690. Also, Pharm. Era, 1909, v. 42, p. 634.

Mameli, Efsio, presents some observations on the chemistry of cubebin.—Proc. VIIth Internat. Congress App. Chem., Sec. VIIb, Pharmacy, 1909, London, 1910, pp. 76-78.

Vanderkleed, C. E., reports 4 assays of cubeb, lowest 16.490, highest 24.380, per cent oleoresin; all above standard.—Proc. Pennsylvania Pharm. Ass., 1909, p. 129.

Baird, J. W., quotes the report of Thomas L. Aiken, on 10 samples of powdered cubebs, only one of which was found to be adulterated, viz., one sample which contained stems, probably from the cubeb plant.—Proc. Massachusetts Pharm. Ass., 1909, p. 122.

Southall Bros. & Barclay (Rep. 1908-9, Birmingham, 1910, p. 11) report finding great differences in the quality of commercial cubebs, the samples fall into two distinct groups with regard to their yield to petroleum spirit. The petroleum spirit extract of 8 samples dried over sulphuric acid ranged from 3.88 to 18.08 per cent; the amount soluble in 90 per cent alcohol, after exhaustion with petroleum spirit, ranged from 3.40 to 5.66 per cent.

#### CUPRI SULPHAS.

The committee of reference in pharmacy asserts that cupri sulphas should contain not more than 0.1 per cent iron (Fe).—Chem. & Drug., Lond., 1909, v. 74, p. 292.

Coste, P. C. J., in a French patent specification, discusses the manufacture of copper sulphate from crude copper oxide and sulphuric acid.—J. Soc. Chem. Ind., 1909, v. 28, p. 22.

Dallimore, P. B., outlines a method for the gravimetric estimation of copper sulphate.—Pharm. J., Lond., 1909, v. 29 (83), p. 271.

Hibbert, Eva, presents some observations on the volumetric estimation of copper and chromium, and of copper, chromium and iron in admixture.—J. Soc. Chem. Ind., 1909, v. 28, pp. 190-192.

Harbert, J. P., states that copper sulphate is more astringent than zinc sulphate, but is often employed for the same purposes. It is less corrosive and also less painful than silver nitrate.—Eclectic M. J., Cincin., 1909, v. 69, p. 466.

Cripps, Ernest C., discusses the use of salts of copper as a fungicide.—Pharm. J., Lond., 1909, v. 28 (82), p. 861. See also article by Sargeant, *Ibid.*, p. 236.

#### CUSSO.

Fussell, M. H., in recommending that Koussou be deleted from the Pharmacopœia, asserts that it may be valuable as a tænicide, but it is notoriously impure and hence should be expunged.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 204.

#### CYPRIPEDIUM.

Fussell, M. H., in recommending the deletion of cypripedium from the Pharmacopœia, asserts that it has no place in modern therapeutics.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 204.

Capps, Pratt, McCrae, and Halsey, recommend the deletion of cypripedium from the U. S. P.—J. Am. Ass., 1909, v. 53, p. 792.

Rusby, H. H., thinks there is much reason to believe that the rhizomes and roots of other species of *Cypripedium* than those named in the pharmacopœial definition are collected. They have exactly the same odor and look very much like the official. Their admissability should be determined, and, if excluded, the description should be

modified for that purpose.—Midl. Drug., 1909, v. 43, p. 690. Also, Pharm. Era, 1909, v. 42, p. 634.

Fyfe, John William, asserts that *Cypripedium pubescens* is an efficient remedy in functional wrongs of the nervous system characterized by excitability and irritability.—Eclectic Rev., 1909, v. 12, p. 144.

#### DECOCTA.

A chapter in Practical Pharmacy discusses the definition for decoctions, and the process for making.—Pharm. J., Lond., 1909, v. 28 (82), p. 276.

"N. N." discusses the proposition to have decoctions and infusions ready made, and points out that the Pharmacopœia provides a definite method of procedure and the apothecary is not at liberty to deviate from the official requirements.—Apoth. Ztg., Berl., 1909, v. 24, p. 756.

#### DIGITALIS.

Schneider, Albert, points out that foxglove has escaped from cultivation and occurs spontaneously along the coast region of California and as far north as Vancouver Island.—Pacific Pharmacist, 1909-10, v. 3, p. 192.

Newcomb, E. L., in commenting on the cultivation of digitalis, points out that plants grown in a greenhouse or under high temperatures are not as thrifty as those grown in the open or well-drained lands with plenty of sun.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 491.

The committee of reference in pharmacy outlines a corrected description for digitalis and suggests that the leaves be required to be thoroughly dried at a low temperature and kept in well-filled, airtight containers. To comply with the international requirements, the following note should be added: "In powdering foxglove leaves no portion should be rejected."—Chem. & Drug., Lond., 1909, v. 74, p. 292.

Schamelhout, A., states that, according to the Second International Congress for the Repression of Adulteration (Paris, 1909) [also Ph. Fr. VI, digitalis leaves should be collected from wild stalks. This is not required by the Ph. Belg. nor by the Brussels Conference.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 337.

Peters, W., gives the moisture content of digitalis as 6.87 to 9.08 per cent; the ash content of the air dry drug as 7.02 to 10.68 per cent; the ash content of the dried drug as 7.67 to 11.60 per cent; and the color of the resulting ash as gray.—Apoth. Ztg., Berl., 1909, v. 24, p. 538. See also Schweiz. Wechuschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, p. 663.

Winckel, Max, discusses the influence of the enzymes of digitalis on the keeping qualities and the therapeutic activity of preparations of this drug.—*Apoth. Ztg.*, Berl., 1909, v. 24, p. 723. Also *Pharm. Post*, Wien, 1909, v. 42, p. 835.

The Belgian inspectors of pharmacies state that the collection of this drug, so valuable, should be the object of more care. The pharmacist should accept only leaves which are separate and well shipped, rejecting ruthlessly the leaves which are bound in bundles coming from young stock, also leaves which are deteriorated.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 549.

Kline, C. M., reports a sample of digitalis leaves containing a large proportion of unknown leaves; the digitalis leaves present being of a poor quality, unevenly cured, and to all appearances from plants of first-year growth. The adulterant consisted of leaves resembling digitalis only to a slight degree.—*Proc. N. W. D. A.*, 1909, p. 128.

Vanderkleed, C. E., reports 20 assays of digitalis leaf, lowest 0.220, highest 0.400 per cent digitoxin; 11 above and 9 below standard.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 129.

Edmunds and Hale present a comprehensive study of the physiological standardization of digitalis, in which they discuss the chemistry of digitalis, relationship of digitoxin content to physiological activity, variability of digitalis preparations, and report a large amount of experimental work with the several methods of physiological standardization that have been proposed. They conclude that standardization on frogs gives the most satisfactory results at the present time.

A second part of the bulletin deals with the variability of 9 different digitalis preparations, 8 of which had a variability in the ratio of 214 to 850, while the ninth was depressant to the heart and not a tonic.—*Bull. Hyg. Lab. U. S. P. H. & M.-H. S.*, 1909, No. 48, pp. 61.

Focke discusses the present status of the physiological testing of digitalis, and concludes that it is possible to determine quantitatively the value of preparations of digitalis by animal experimentation.—*Ztschr. f. exper. Path. u. Therap.*, 1909-10, v. 7, pp. 1-7. Also *Arch. d. Pharm.*, 1909, v. 247, pp. 545-553.

Brown, Edgar D., presents a review of the pharmacology and chemistry of digitalis.—*Pharm. Era*, 1909, v. 42, pp. 111-113. Also *Proc. Minnesota Pharm. Ass.*, 1909, pp. 74, 80.

Hallaway, Robert R., discusses the physiological standardization of digitalis, from the point of view of the pharmacist, and concludes that further experiments in this connection are required as there is plainly a demand for drugs tested in this way.—*Pharm. J.*, Lond., 1909, v. 29 (83), pp. 801-802.

Martin, William, points out that there is great variation in preparations of digitalis on the market, emphasizes the need for biochemical

standardization, and outlines the method employed by him.—*Ibid.*, pp. 150–152. Also Year-Book of Pharmacy, Lond., 1909, pp. 245–253.

Houghton, E. M., publishes a modification of his definition of a heart tonic, and a table giving the proposed standards for the most important preparations of the digitalis series.—*Lancet*, 1909, v. 177, p. 1174. See also *Therap. Gaz.*, 1909, v. 33, p. 730.

Houghton and Hamilton discuss the pharmacological assay of digitalis preparations, present a standard for tincture of digitalis, and point out that the fluid extract of digitalis is not a satisfactory preparation as the menstruum directed by the U. S. P. VIII does not exhaust the drug.—*Am. J. Pharm.*, Phila., 1909, v. 81, pp. 466–470. Also *Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 778.

MacEwan and Forrester, in discussing the desirability of international inquiry regarding variations in the activity of certain toxic drugs, calls attention to the variations that have been noted in the digitoxin content of digitalis leaves.—*Proc. VIIth Internat. Congress App. Chem.*, Sec. VIIb, Pharmacy, 1909, London, 1910, pp. 86–87.

Evans Sons Lescher & Webb (Analytical Notes, 1909, pp. 2–3) recommend the isolated mammalian heart for the standardization of preparations of digitalis.

Hale, Worth, discusses the facts relating to the standardization of digitalis, and points out the need for agreeing upon a readily maintained biological standard.—*Am. J. Pharm.*, Phila., 1909, v. 81, p. 439. Also *Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 768–773.

Rippetoe, John R., reviews experiments on the physiological action of fluid glycerate of digitalis. His results would indicate that the hydro-alcoholic extract is 5 times more potent than the hydro-glycerin preparation.—*Am. J. Pharm.*, Phila., 1909, v. 81, pp. 84–86.

A number of references on the standardization and the pharmacological action of digitalis will be found in *Jahresb. ü. Tier-Chem.*, 1909, Wiesb., 1910, v. 39.

Kiliani, H., reports observations on digitoxonic and digitalonic acids.—*Ber. d. deutsch. chem. Gesellsch.*, Berl., 1909, v. 42, pp. 2610–2611.

McWalter, J. C., asserts that digitoxinum presents a definite, crystalline, active principle of digitalis. He recommends that this article be given a place in the *Ph. Brit.*—*Chem. & Drug.*, Lond., 1909, v. 74, p. 20.

Riedel's *Berichte* (Berlin, 1909, p. xliii) presents a monograph on "Digitalinum purum pulvis," a mixture of the glucosides digitalin, digitonin, digitalin, and digitoxin, including an enumeration of properties and tests.

An editorial (*Therap. Gaz.*, 1909, v. 33, pp. 493–495) discusses the comparative value of digitalis, squill and strophanthus, and calls

attention to the conclusions reached by J. Gordon Sharp regarding the deterioration of liquid preparations of digitalis.

Caldwell, Paul, thinks that fluid extract of digitalis can be dropped for the reason that the tincture is used instead.—Bull. Pharm., 1909, v. 23, p. 115.

Caesar & Loretz (Geschäfts-Ber., 1909, p. 23) quote C. Focke, who recommends that infusion of digitalis be dispensed with the addition of 5 per cent of alcohol as a corrective. He prefers alcohol to brandy because of the cleaner and more agreeable taste.

Cook, E. Fullerton, reports that a small amount of greenish-brown precipitate forms in tincture of digitalis.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1002.

Astruc and Déjean contribute a note on the alcoholature and the alcoholic tincture of digitalis.—J. d. pharm. et d. chim., Par., 1909, v. 29, pp. 324–329. See also p. 274.

Wilks, Samuel, discusses the relative value of the tincture and the infusion of digitalis. He frequently makes use of the infusion and finds it much more efficient than the concentrated tincture.—Folia Therap., Lond., 1909, v. 3, p. 101.

McGee, J. B., asserts that digitalis still retains first place as a circulatory stimulant, and is frequently almost indispensable. As to the choice of preparation, the general preference of the profession for the infusion, when dropsy is present, is borne out by the pharmacologic investigation of the drug. He points out that a fresh infusion from the leaves is, however, necessary, as a dilution of the fluid extract or tincture is an essentially different preparation.—Merck's Arch., 1909, v. 11, p. 81.

Fleissig quotes Focke, who asserts that infusion of digitalis can be preserved by the addition of several drops of chloroform.—Schweiz. Wchnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, p. 90.

Étienne, Georges, reports a comparative study of the physiological action of various derivatives and preparations of digitalis.—Arch. internat. d. pharmacod. et d. therap., 1909, v. 19, pp. 119–153.

Kochmann, Martin, reports observations on the influence of digitalis bodies on the vagus nerve.—*Ibid.*, pp. 327–335.

Focke discusses the variations in the use of digitalis in connection with spontaneous hæmorrhage.—Therap. d. Gegenw., 1909, v. 50, pp. 92–95.

Hale, Worth, in discussing the harm that has been done by the indiscriminate or ignorant administration of medicines, points out that the history of digitalis and its use in conditions in which it is now known to be distinctly contra-indicated will evidence the dangers of relying on traditions emanating from empiricism.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 87.

An editorial (Merck's Arch., 1909, v. 11, p. 334) discusses the substitutes for digitalis, and points out that although one of the most valuable products in the pharmacopœia digitalis is unfortunately not reliable in action owing to the fact that the strength of the leaves varies considerably.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 179-185) reviews some of the recent literature relating to the pharmacology and use of digitalis substances.

Additional references, on the standardization, pharmacology and use of digitalis, will be found in Index Medicus and J. Am. M. Ass.

### ELASTICA.

Hunt, Reid, believes that the description of rubber might more properly be placed in the Appendix of the Pharmacopœia.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 11.

An unsigned article presents a short description with illustrations of the method of producing and making rubber in the Amazon region of South America.—Midl. Drug., 1909, v. 43, pp. 692-694.

Bandke and Lenz report on the examination of samples of rubber.—Arb. a. d. pharm. Inst. d. Univ. Berl. (1909), 1910, v. 7, pp. 276-279.

A number of references on the cultivation of rubber will be found in J. d'Agric. Trop. Par.; Bull. Imp. Inst.; Der Tropenpflanzer and Exp. Sta. Rec.

### ELATERINUM.

Power and Moore report a chemical examination of elaterium and the characters of elaterin. They conclude that the product designated as elaterin, and officially recognized under that title, is so variable in character as to require the adoption of some standard of physiological activity before it can be considered suitable for medicinal use.—Pharm. J., Lond., 1909, v. 29 (83), pp. 501-504.

Berg, A., states that he has previously shown that elaterin does not exist as such in the fruit of *Ecballium elaterium*, but is formed at the time of their expression by the action of a peculiar diastase, elaterase, on an amorphous glucoside. He now gives the formula of elaterin as  $C_{22}H_{38}O_7$ .—Pharm. J., Lond., 1909, v. 28 (82), p. 770. Also Proc. VIIth Internat. Congress App. Chem., Sec. VIIIb, Pharmacy, 1909, London, 1910, pp. 26-27.

Beringer, George M., asserts that elaterium is more frequently used than is elaterin, despite the pharmacopœial rejection of the former.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 812.

### ELIXIR ADJUVANS.

Beringer, George M., thinks the title Elixir Adjuvans should be Elixir of Glycyrrhiza.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 818.



Taylor, Augustus Carrier, points out that the formula for elixir adjuvans U. S. P. is fluid extract of licorice 120 cc. to 880 cc. simple elixir. Elixir licorice N. F., is 125 cc. fluid extract licorice, 875 cc. simple elixir. They are almost identical, and one or the other could be dropped without being missed.—Pharm. Era, 1909, v. 41, p. 493.

Mittelbach, William, thinks that the formula for adjuvant elixir is not as good as the original N. F. formula. If retained, he thinks the proportion should be 1 to 9.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 818.

#### **ELIXIR AROMATICUM.**

Johnston, Ralph R., discusses the aromatic elixir of the U. S. P. and outlines a formula for an "improved" aromatic elixir, containing approximately 10 per cent of alcohol, 15 per cent of glycerin, and 75 per cent of water.—Pharm. Era, 1909, v. 41, pp. 468-469.

Lindvall, Gus., thinks that aromatic elixir is made with 3 times too much aromatic spirit.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1048.

Havenhill, L. D., proposes a modified method for the preparation of aromatic elixirs.—Proc. Kansas Pharm. Ass., 1909, p. 61.

Posey, H. G., recommends the following procedure: Add the compound spirit of orange to the talcum, then all the water, and filter. Now add the sirup and alcohol. Several gallons can be made in a short while; whereas, to filter it after being made pharmacopeially means a two-day job.—Western Druggist, Chicago, 1909, v. 31, p. 10.

#### **ELIXIR FERRI, QUININÆ ET STRYCHNINÆ PHOSPHATUM.**

Fussell, M. H., thinks that elixir of the phosphates of iron, quinine, and strychnine should be relegated to the National Formulary.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 205.

Taylor, Augustus Carrier, calls attention to the duplication of formulas for elixirs of iron, quinine, and strychnine and trusts that both N. F. formulas will be dropped at the next revision.—Pharm. Era, 1909, v. 41, p. 493.

Mittelbach, William, thinks that the U. S. P. elixir is not as permanent, in color and otherwise, as that of the N. F., 1896, and certainly no better therapeutically.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 818.

A report of the New Orleans branch meeting calls attention to the variation in color of elixirs of iron, quinine, and strychnine made by different members.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 151.

See also paper by Guidry, A. J.—Proc. Louisiana Pharm. Ass., 1909, p. 56.

Sayre and Coburn report that elixir of iron, quinine, and strychnine made up a very presentable and clear solution, but upon stand-

ing awhile a precipitate came down, which continued to fall for three or four weeks.—*Proc. Kansas Pharm. Ass.*, 1909, p. 89.

Sharp, S. A., discusses the U. S. P. formula for elixir of phosphates of iron, quinine, and strychnine, and presents an improved formula (this is a correction of a formula previously printed).—*Pacific Pharmacist*, 1909–1910, v. 3, pp. 290–291. See also p. 167.

Marquier, Adolph, suggests a revised formula.—*Proc. New Jersey Pharm. Ass.*, 1909, p. 47. Also *Am. Druggist*, N. Y., 1909, v. 53, p. 211.

Sayre and Zieffle report one sample of elixir of iron, quinine, and strychnine phosphates examined which was below standard.—*Bull. Kansas Bd. Health*, 1909, v. 5, D. A., 16–23.

#### ELIXIRIA N. F.

Diehl, C. L., reports, from the committee on N. F., opposition to changing the flavors of old-established elixirs.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1061.

Wilbert, M. I., discusses the perpetuation of elixirs in the National Formulary, and presents a table showing that practically all of the elixirs originally in the New York and Brooklyn Formulary are still continued in the National Formulary.—*Ibid.*, pp. 1044–1047.

Diehl, C. Lewis, in an article on the evolution of the National Formulary, discusses the history of elixirs, and comments on the introduction of the modern elixir into pharmacy.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 15.

Hynson, H. P., in a review of the history of elixirs, calls attention to the fact that the first formula for an elixir published in America originated in Baltimore. This formula was for elixir of cinchona, by A. P. Sharp, and appears in the Proceedings of the American Pharmaceutical Association for 1858.—*Ibid.*, v. 4, p. 116.

Kebler, L. F., criticises the nomenclature of the N. F. "elixirs" in which the word "cinchona" constitutes a part of the title, and calls attention to the fact that there is no cinchona in the product, but it is represented by the sulphates of quinine and cinchonidine.—*J. Am. M. Ass.*, 1909, v. 52, p. 1393.

Dieterich and Mix, in a discussion on the valuation of galenical preparations, enumerate the requirements for the several Ph. Germ. IV, and some unofficial, elixirs.—*Pharm. Zentralh.*, 1909, v. 50, p. 727. See also p. 540.

Flemer, Lewis, objects to the use of fluid extracts in the making of elixirs of the National Formulary, and points out that elixirs prepared according to many of the formulas of the N. F. apparently never stop precipitating, and consequently require repeated filtering to render them sightly.—*Apothecary*, 1909, v. 21, June, p. 28. Also *Western Druggist*, 1909, v. 31, p. 338.

Schimmel, M. S., asserts that elixirs and sirups made from fluid extracts are bad, and could not be worse. He further adds that one can not go into two different stores and find the same kinds of sirup or elixir, even when made according to the U. S. P. or N. F., that will look alike.—Pharm. Era, 1909, v. 42, p. 496.

Mittelbach, Wm., discusses the National Formulary elixirs, and points out that many of them, including several mixtures of fluid extracts and aromatic elixir, might well be discontinued.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 973-974. Also Am. Druggist, N. Y., 1909, v. 55, p. 142.

Wilbert, M. I., favors the elimination of many of the elixirs now official in the National Formulary, on the ground that they are not creditable to American pharmacy, and are not used to such an extent as to justify their retention.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 116.

Bruder, Otto E., asserts that the number of elixirs included in the National Formulary—some 88—is abnormally large and that many of the simple ones could readily be dispensed with, as they offer no particular advantage to the physician.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 965. Also Bull. Am. Pharm. Ass., 1909, v. 4, p. 231.

Beringer, Geo. M., presents formulas for some new basic elixirs.—Proc. Pennsylvania Pharm. Ass., 1909, pp. 251-255. Also Am. Druggist, N. Y., 1909, v. 55, p. 75.

Diehl, C. L., reports, from the committee on N. F., the formulas for several new elixirs, in answer to the demand for low-strength alcoholic elixirs, including a formula for elixir cardamomi compositum and elixir vanillini compositum.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1062.

The members of the Baltimore branch think that the elixirs of the National Formulary should be kept on hand for some time after manufacture, so as to allow more complete blending.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 116.

#### ELIXIR ACIDI SALICYLICI N. F.

Posey, H. G., asserts that the formula for elixir of salicylic acid N. F. is faulty and comparatively unused.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 984.

Diehl, C. L., reports from the committee on N. F. the recommendation that elixir of salicylic acid be dropped.—*Ibid.*, p. 1062.

#### ELIXIR AMMONII VALERIANATIS N. F.

Posey, H. G., thinks the title of elixir of ammonium valerianate should be changed to valerate in conformity with modern nomenclature, and as modern usage and custom demand a red elixir, tinc-

ture of cudbear should replace the compound tincture of cudbear as the coloring agent.—*Ibid.*, p. 984.

**ELIXIR AMMONII VALERIANATIS ET QUININÆ N. F.**

Posey, H. G., thinks that elixir of ammonium valerianate and quinine serves no good purpose and should be omitted.—*Ibid.*, p. 984.

Diehl, C. L., reports from the committee on N. F. the recommendation that elixir of ammonium valerianate and quinine be dropped.—*Ibid.*, p. 1062.

**ELIXIR ANISI N. F.**

Posey, H. G., asserts that no good reason exists for such a pharmaceutical curiosity as elixir of anise; besides, its name is a misnomer, and as for its odor and flavor, he thinks the less said the better. It is not an elixir of anise, and is misbranded within the meaning of the food and drugs act.—*Ibid.*, p. 984.

Diehl, C. L., reports from the committee on N. F. the recommendation that the note on elixir of anise be deleted.—*Ibid.*, p. 1063.

Cook, E. Fullerton, reports that one contributor thinks that elixir of anise is too "sweet and heavy."—*Ibid.*, p. 960.

**ELIXIR APII GRAVEOLENTIS COMPOSITUM N. F.**

Bruder, Otto E., thinks that the name of compound elixir of celery should be changed to compound elixir of kola, because it is more brief in the Latin title, confusion with opium is avoided, and the new name is just as definite and representative.—*Ibid.*, p. 966. Also Bull. Am. Pharm. Ass., 1909, v. 4, p. 232.

Cook, E. Fullerton, reports that the title for compound elixir of celery should indicate the presence of coca. The alcoholic strength should be reduced, as it is too strong for a nerve sedative.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 960.

Diehl, C. L., reports from the committee on N. F. the recommendation that compound elixir of celery be dropped, or, if retained, that the title be changed to "Elixir Cocæ (et?) Kolæ Comp."—*Ibid.*, p. 1063.

**ELIXIR BUCHU N. F.**

Posey, H. G., thinks that Elixir Buchu, Elixir Buchu Compositum, and Elixir Buchu et Potassii Acetatis all seem to be very good formulas, but as a well-defined demand exists for an elixir of buchu, juniper, and potassium acetate, the committee would do well to incorporate a formula therefor and omit the last of the present buchu trinity.—*Ibid.*, p. 984.

Cook, E. Fullerton, recommends that elixir of buchu and potassium acetate be dismissed from the National Formulary, as it can readily be prepared extemporaneously if wanted.—*Ibid.*, p. 962.

#### ELIXIR CAFFEINÆ N. F.

Posey, H. G., asks why the acid is added in elixir of caffeine and points out that Cook (*Am. J. Pharm.*, 1909, p. 337) claims that the quantity of aromatic elixir directed is insufficient to effect solution. He has had no such trouble, but does notice a separation of the oils in the aromatic elixir.—*Ibid.*, p. 984.

#### ELIXIR CALCII LACTOPHOSPHATIS N. F.

Posey, H. G., speaking of elixir of calcium lactophosphate, suggests dissolving the calcium salt in the acid, then adding the other ingredients.—*Ibid.*, p. 985.

Diehl, C. L., reports from the committee on N. F. recommending a change in directions.—*Ibid.*, p. 1063.

#### ELIXIR CHLOROFORMI COMPOSITUM N. F.

Posey, H. G., thinks that as quite an amount of sediment occurs in compound cathartic elixir, talcum should be added.—*Ibid.*, p. 985.

Diehl, C. L., reports from the committee on N. F. that saccharin (2 grains in 1 fluid ounce) is regarded as being excessive.—*Ibid.*, p. 1063.

#### ELIXIR CHLOROFORMI COMPOSITUM N. F.

Diehl, C. L., reports from the committee on N. F. the recommendation that compound elixir of chloroform be dropped, or, if retained, then under the title "Spirit of chloroform, opium, and camphor, compound."—*Ibid.*, p. 1063.

#### ELIXIR CINCHONÆ N. F.

Cook, E. Fullerton, thinks the title of elixir of cinchona should indicate the presence of cinchona alkaloids, and the absence of cinchona bark. He reports that one contributor suggests that the color should be lighter, simple tincture of cudbear being used as a coloring.—*Ibid.*, p. 960.

Posey, H. G., quotes Kebler (*Bulletin A. Ph. A.*, Apr., 1909, p. 120) who points out that elixir of cinchona is misbranded under the food and drugs act, in that it is not an elixir of cinchona.—*Ibid.*, p. 985.

Beringer, George M., thinks the criticism "from an official source" against the title of elixir of cinchona to be unfair, inasmuch as the

N. F. has simply followed a custom that holds in all of the pharmacopœias.—Proc. New Jersey Pharm. Ass., 1909, p. 118.

Diehl, C. L., reports from the committee on N. F. recommending that the title be changed to "Elixir of cinchona alkaloids."—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1064.

**ELIXIR CINCHONÆ ET FERRI N. F.**

Sayre and Zieffe report 1 sample of cinchona and iron examined, which was below standard.—Bull. Kansas Bd. Health, 1909, v. 5, D. A., 16-23.

**ELIXIR CINCHONÆ, FERRI ET CALCII LACTOPHOSPHATIS N. F.**

Sayre and Coburn find that if the elixir of cinchona, iron, and calcium lactophosphate be allowed to stand 48 instead of 24 hours the precipitate which forms will be diminished by about one-third.—Proc. Kansas Pharm. Ass., 1909, p. 88.

**ELIXIR CINCHONÆ, FERRI ET PEPSINI N. F.**

Sayre and Coburn report that elixir of calisaya, iron, and pepsin made up a clear solution, but, after standing two weeks, a white flocculent precipitate was formed.—*Ibid.*, p. 89.

**ELIXIR CINCHONÆ, FERRI ET STRYCHNINÆ N. F.**

Reyer, Emil, reports a number of experiments with elixir of cinchona, iron, and strychnine N. F., and expresses the belief that the present N. F. formula directs too much compound tincture of cudbear.—Bull. Pharm., 1909, v. 23, pp. 166-167.

**ELIXIR CINCHONÆ, PEPSINI ET STRYCHNINÆ N. F.**

Diehl, C. L., reports from the committee on N. F. the recommendation that 25 cc. of water be added to the formula and the directions changed, or that the formula be dropped.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1064.

**ELIXIR CORYDALIS COMPOSITUM N. F.**

Nitardy, F. W., presents a formula for compound elixir of corydalis N. F., in which the products are percolated with a suitable menstruum and the elixir made directly from the percolate.—*Ibid.*, p. 1057.

**ELIXIR CURASSAO N. F.**

Posey, H. G., asserts that as elixir of curaçao has no great popularity, and as oil of curaçao orange is a commercial impossibility, it

might be well to dismiss the formula for elixir of curaçao.—*Ibid.*, p. 985.

Beringer, Geo. M., discusses the elixir of curaçao in the N. F., and presents a modified formula for a preparation of this type.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 253.

Diehl, C. L., reports from the committee on N. F., a formula, which is based upon an analysis of the continental Elixir of Curaçao, and has been used satisfactorily for a number of years.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 1064–1065.

#### ELIXIR DIGESTIVUM COMPOSITUM N. F.

Diehl, C. L., reports that the committee on N. F. has confirmed the statement as to the inactivity of this preparation, made by the council on pharmacy and chemistry of the American Medical Association, but that on account of the widespread use of this elixir it is thought desirable to retain it.—*Ibid.*, p. 1065.

Pearson, W. A., reports experiments with elixir of lactated pepsin in several concentrations at different temperatures, and under various degrees of acidity and alkalinity, without any more action than the corresponding blank experiment under the same conditions.—*Am. J. Pharm.*, Phila., 1909, v. 81, p. 440.

Kline, C. M., points out that, from the price at which this preparation is offered by some makers, they apparently do not even attempt to add pepsin and pancreatin at all. Such a practice is certainly reprehensible, though, considered only from the standpoint of economy, why add the ingredients when one knows that they are to be at once destroyed.—*Proc. N. W. D. A.*, 1909, p. 123.

Bruder, Otto E., points out that pepsin and pancreatin in compound digestive elixir N. F., are therapeutically incompatible, and suggests that either the formula be discontinued or the pancreatin be left out.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 965. Also *Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 231.

La Wall, Charles H., asserts that while compound digestive elixir has been characterized as a therapeutic monstrosity and a pharmaceutical crime, nevertheless, strong protests were made against dismissing it from the N. F.—*Boston M. & S. J.*, 1909, v. 160, p. 623.

Posey, H. G., asserts that the formula for compound digestive elixir yields a satisfactory appearing elixir, but it can not be reconciled to the formulas now in general use by manufacturers who are supplying this product.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 985.

Hargreaves, John, in discussing the possible uses of "Elixir Pepsini Compositum, C. F." points out that it has been thoroughly well established that mixtures of this kind tend to become more or less inert, and that the constituents can not be expected to retain their

normal activity for more than from 3 to 6 weeks.—*Canad. Pharm. J.*, Toronto, 1909-10, v. 43, p. 194.

Cook, E. Fullerton, reports the suggestion that there be 2 elixirs of the compound digestive elixir type, both red, one containing pepsin only and the other pancreatin and diastase only.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 960.

Beringer, George M., presents a formula for compound elixir of pepsin designed to represent approximately one-tenth the strength of the proposed compound powder of pepsin.—*Am. J. Pharm.*, Phila., 1909, v. 81, pp. 334-336. Also *Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 185.

Hartz, J. D. Aug., thinks this preparation would be improved if it contained about 2 cc. of lactic acid in a liter and sugar of milk in place of glycerin.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 969.

Hilton, Samuel L., expresses the belief that the formula for compound digestive elixir should require the use of cudbear instead of tincture of cudbear, as a more uniform color can be obtained by macerating the coloring matter in the liquid for 24 hours.—*Pharm. Era*, 1909, v. 41, p. 254.

Dunlap, Renick W., reports two samples of elixir of lactated pepsin examined, not passed.—*Rep. Ohio Dairy & Food Com.*, 1909, p. 60.

#### ELIXIR ERIODICTYI AROMATICUM N. F.

Taylor, Augustus Carrier, points out that we have aromatic sirup of yerba santa and aromatic elixir of yerba santa—both intended chiefly as vehicles for quinine. The sirup disguises the taste of quinine better than the elixir, because of the very small amount of alcohol it contains. That being the case, he would discard the elixir.—*Pharm. Era*, 1909, v. 41, p. 494.

#### ELIXIR FERRI LACTATIS N. F.

Posey, H. G., thinks the present formula for elixir of lactate of iron is faulty and should be replaced by the reconstructed formula (*Bulletin A. Ph. A.*, v. 2, p. 158).—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 985.

Sayre and Coburn report that in elixir of lactate of iron a white precipitate formed in a few hours and was filtered off; after two weeks there was more of the same precipitate down.—*Proc. Kansas Pharm. Ass.*, 1909, p. 89.

#### ELIXIR FERRI, QUININÆ ET STRYCHNINÆ N. F.

Posey, H. G., thinks the title for Elixir Ferri, Quininæ et Strychninæ should read elixir ferri citro-chloridi, quininæ et strychninæ.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 985.



Diehl, C. L., reports from the committee on N. F. the assertion that the use of tincture of citro-chloride of iron, made by the proposed modified formula, overcomes the tendency of this elixir to precipitate.—*Ibid.*, p. 1065.

#### ELIXIR FRANGULÆ N. F.

Posey, H. G., thinks that elixir of frangula should be filtered through talc.—*Ibid.*, p. 986.

Taylor, Augustus Carrier, points out that we have elixir of cascara and elixir of frangula—a useless duplication of formulas.—Pharm. Era, 1909, v. 41, p. 494.

#### ELIXIR GENTIANÆ N. F.

Posey, H. G., thinks the present formula for elixir of gentian is too troublesome and requires entirely too much time. Detannated fluid extract of gentian can be used to good advantage and will simplify things generally, in so far as this product is concerned.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 986.

Hilton, Samuel L., thinks that a detannated fluid extract of gentian would be very acceptable.—Pharm. Era, 1909, v. 41, p. 254.

Beringer, Geo. M., discusses the elixir of gentian of the N. F. and criticizes the detannating process.—Proc. Pennsylvania Pharm. Ass., 1909, pp. 255-256.

Dunn, John A., has found it necessary to use 37.5 cc. of solution of ferric sulphate for detannating gentian in making the elixir of gentian N. F.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 954.

Diehl, C. L., reports from the committee on N. F., recommending the increase of material used for detannating, as suggested by E. H. Squibb, or a formula which has the advantages over the one now in the N. F., that it is much stronger in gentian flavor, the detannating in the former process removing with the tannin much of the bitter principle, and that the preparation may be made quickly and easily and has all the advantages of the detannated elixir.—*Ibid.*, pp. 1065-1066.

#### ELIXIR GENTIANÆ CUM TINCTURA FERRI CHLORIDI N. F.

Posey, H. G., thinks the title of Elixir Gentianæ cum Tincturâ Ferri Chloridi should be changed to show the citro-chloride.—*Ibid.*, p. 986.

Diehl, C. L., reports from the committee on N. F. the recommendation that there be no change in the formula for elixir of gentian with tincture of chloride of iron. the new elixir of gentian, however, to be used. He recommends the change in the title from "chloride of iron" to "ferric chloride."—*Ibid.*, p. 1066.

## ELIXIR GENTIANÆ ET FERRI PHOSPHATIS N. F.

Diehl, C. L., reports from the committee on N. F., recommending that there be no change in the formula for elixir of gentian and phosphate of iron, the new elixir of gentian, however, to be used. He recommends changing "Phosphate of iron" in the title to "Ferric phosphate."—*Ibid.*, p. 1066.

## ELIXIR GENTIANÆ GLYCERINATUM N. F.

Hilton, Samuel L., asks what reason can be given for the application of the title "Glycerinated elixir of gentian" to a preparation that is nothing but a conglomeration of various medicines. It is not an elixir in its true sense.—*Pharm. Era*, 1909, v. 41, p. 253.

Thiel, August, believes that the difference of flavor in preparations like elixir of gentian glycerinated, prepared at different pharmacies, is caused by the different priced wines used in their manufacture.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 155.

Diner, J., recommends a modified formula for glycerinated elixir of gentian N. F., in which the crude drugs are directed to be percolated with a proper menstruum.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1161.

Cook, E. Fullerton, thinks the formula for glycerinated elixir of gentian should be improved (see recommendations made by Apple, P. P. A. Proc., 1907).—*Ibid.*, p. 960.

Posey, H. G., thinks the formula for glycerinated elixir of gentian is badly in need of revision.—*Ibid.*, p. 986.

Diehl, C. L., reports from the committee on N. F. the recommendation that the fluid extract of gentian be increased to 20 cc. and that the saccharin (solution) be omitted.—*Ibid.*, p. 1066.

## ELIXIR GLYCEROPHOSPHATUM N. F.

McWalter, J. C., recommends elixir glycerophosphatum as a palatable preparation and asserts that this should be included in the Ph. Brit.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 20.

Kline, C. M., reports that several lots of glycerophosphates were below the required strength.—*Proc. N. W. D. A.*, 1909, pp. 134, 135.

Dunning, H. A. B., has found neutral and acid glycerophosphates on the market, and points out that these naturally require varying quantities of phosphoric acid to be used in making elixir of glycerophosphates.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 25.

Cook, E. Fullerton, reports a formula suggested by W. L. Cliffe for elixir of glycerophosphates.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 960.

Caspari, Chas., jr., reports that elixir of glycerophosphates had generally precipitated and the cause has been found to be due to a deficiency in the amount of phosphoric acid. An increase from 8 to 10 gm. in the amount of acid per liter was found to correct the trouble entirely.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 25.

Posey, H. G., asserts that the experience of everyone who attempts elixir of glycerophosphates is that the salts are very slowly soluble, and subsequently throw down a precipitate.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 986.

Rice, Herbert E., thinks the elixir of glycerophosphates may need a little more phosphoric acid than the formula calls for in order to hold the salts in solution.—Proc. New Hampshire Pharm. Ass., 1909, p. 70.

An unsigned article points out that trouble has been experienced in making elixir of glycerophosphates, caused by the variation in the strength of the phosphoric acid, and suggests a modification in the method of procedure.—N. A. R. D. Notes, 1909, v. 8, p. 394.

Dunn, John A., points out that it is necessary to increase the phosphoric acid from 8 to 10 gm. to insure permanent solution.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 954.

Diehl, C. L., reports from the committee on N. F. recommending to double the amount of sodium and calcium glycerophosphates, and the use of 15 gm. of lactic acid, in place of the phosphoric acid, in elixir of glycerophosphates; also the use of 100 cc. of angelica wine in place of an equal amount of aromatic elixir.—*Ibid.*, p. 1066.

#### ELIXIR GLYCYRRHIZÆ N. F.

Cook, E. Fullerton, thinks that elixir of glycyrrhiza should be dismissed as it is practically a duplicate of the U. S. P. adjuvant elixir.—*Ibid.*, p. 960. See also Posey, H. G.—*Ibid.*, p. 986.

#### ELIXIR GRINDELLE N. F.

Diehl, C. L., reports from the committee on N. F. recommending the addition of a small quantity of borax to the compound elixir of taraxacum to prevent the deposit which is sometimes formed in elixir of grindelia.—*Ibid.*, p. 1067.

#### ELIXIR GUARANÆ N. F.

Diehl, C. L., reports from the committee on N. F. recommending a modified formula for compound elixir of taraxacum, to prevent the deposit which is sometimes formed in elixir of guaranæ.—*Ibid.*, p. 1067.

#### ELIXIR HYPOPHOSPHITUM N. F.

Taylor, Augustus Carrier, points out that we have elixir of hypophosphites and sirup of hypophosphites. The solution is an agree-

ably flavored preparation containing glycerin instead of sugar, very similar to the sirup, but differs a little in strength, and should replace the elixir, allowing the latter to be dropped.—Pharm. Era, 1909, v. 41, p. 493.

#### ELIXIR HYPOPHOSPHITUM CUM FERRO N. F.

Diehl, C. L., reports from the committee on N. F. a modified formula for elixir of hypophosphites with iron.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1067.

#### ELIXIR PARALDEHYDI N. F.

Posey, H. G., recommends that the alcohol content in elixir of paraldehyde be increased to 50 per cent by volume, and that the oils and tincture of cardamom be triturated with talc before adding the aromatic elixir. The present quantity of alcohol is insufficient to hold the paraldehyde in solution.—*Ibid.*, p. 986.

Nitardy, F. W., offers a formula for elixir of paraldehyde N. F., in which 25 cc. of elixir is replaced by alcohol.—*Ibid.*, p. 1056.

Dunn, John A., finds it necessary to increase the alcohol from 315 cc. to 330 cc. to insure perfectly clear products.—*Ibid.*, p. 954.

Diehl, C. L., reports from the committee on N. F. the suggestion of E. H. Squibb to increase the alcohol from 315 cc. to 330 cc. and the opinion that this is the only change called for apart from the alternative to dismiss the formula.—*Ibid.*, p. 1067.

#### ELIXIR PEPSINI N. F.

Cook, E. Fullerton, asserts that as the essence of pepsin is a far more satisfactory preparation, elixir of pepsin should be dismissed.—*Ibid.*, p. 960.

#### ELIXIR PEPSINI, BISMUTHI ET STRYCHNINÆ N. F.

Sayre and Zieffle report one sample of elixir of pepsin, bismuth and strychnine examined, which was below standard.—Bull. Kansas Bd. Health, 1909, v. 5, D. A., 16-23.

#### ELIXIR PEPSINI ET BISMUTHI N. F.

Posey, H. G., points out that presumably the committee meant to improve elixir of pepsin and bismuth by publishing a reconstructed formula (Bull. A. Ph. A., vol. 2, p. 158); but does not understand just why the new formula is better than the old.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 986.

Diehl, C. L., reports, from the committee on N. F., the recommendation to insert in the first line of directions, after the word "Glycerin," "and if decidedly acid, nearly neutralize with sodium hydroxide solution."—*Ibid.*, p. 1068.

## ELIXIR PICIS COMPOSITUM N. F.

Diehl, C. L., reports, from the committee on N. F., the recommendation that compound elixir of tar be dropped.—*Ibid.*, p. 1068.

## ELIXIR POTASSII ACETATIS N. F.

Cook, E. Fullerton, recommends that elixir of potassium acetate be dismissed from the National Formulary, as it can readily be prepared extemporaneously if wanted.—*Ibid.*, p. 962.

## ELIXIR POTASSII BROMIDI N. F.

Cook, E. Fullerton, thinks that elixir of potassium bromide, and other elixirs containing bromides, should be of a weaker alcoholic strength.—*Ibid.*, p. 960.

Diehl, C. L., reports from the committee on N. F. opposing a change of flavor.—*Ibid.*, p. 1068.

## ELIXIR QUININÆ ET PHOSPHATUM COMPOSITUM N. F.

Caspari, Chas., jr., reports that 30 samples of elixir quinine and phosphates comp. had precipitated within 48 hours, some becoming turbid at once.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 25.

Posey, H. G., agrees thoroughly with the criticism of Cook (Am. J. Pharm., 1908, v. 80, p. 339) of compound elixir of quinine and phosphates, and suggests that the committee omit this preparation entirely.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 986.

Diehl, C. L., reports, from the committee on N. F., the recommendation that compound elixir of quinine and phosphates be dismissed.—*Ibid.*, p. 1068.

Wheeler, A. Alton, discusses the several formulas containing compound phosphates and suggests a simplification of the formula, so as to permit of their being prepared extemporaneously from a compound solution of phosphates, strong, for which he presents a formula.—*Ibid.*, pp. 971-973.

## ELIXIR RHAMNI PURSHIANÆ COMPOSITUM N. F.

Posey, H. G., thinks talc should be added as a clarifying and filtering agent in elixir of cascara sagrada.—*Ibid.*, p. 986.

## ELIXIR RUBI COMPOSITUM N. F.

Flemer, Lewis, points out that this elixir could be improved if maceration and subsequent percolation be employed.—Western Druggist, Chicago, 1909, v. 31, p. 338.

Diehl, C. L., reports, from the committee on N. F., that they were unable to obtain blackberry juice at the time of making experiments, and do not recommend increasing the alcoholic strength sufficiently to prevent fermentation. Chloroform or other preservatives might be added, but some of the committee doubt the advisability of creating a formula of this character.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1068.

**ELIXIR SODII BROMIDI N. F.**

Diehl, C. L., reports, from the committee on N. F., opposing change of flavor in old-established elixirs.—*Ibid.*, p. 1068.

**ELIXIR SODII SALICYLATIS N. F.**

Diehl, C. L., reports from the committee on N. F. opposing a change of flavor in elixir of sodium salicylate.—*Ibid.*, p. 1068.

Cook, E. Fullerton, suggests that elixir of sodium salicylate be dismissed from the National Formulary, as it can readily be prepared extemporaneously if wanted.—*Ibid.*, p. 962.

**ELIXIR TARAXACI COMPOSITUM N. F.**

Diehl, C. L., reports that the formula for compound elixir of taraxacum has been giving satisfaction to the majority of druggists and has been widely copied. For use in connection with elixir of grindelia and elixir of guarana it has been recommended that the addition of a small quantity of borax to compound elixir of taraxacum would prevent precipitation.—*Ibid.*, p. 1069.

**ELIXIR TERPINI HYDRATIS N. F.**

Wolf, J. Carlton, suggests increasing the alcohol in making elixir terpin hydrate from 400 to 450 cc. per liter, and using glycerin in place of sirup.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 25.

Meyer, C. L., thinks that elixir of terpin hydrate, elixir of terpin hydrate with codeine, and elixir of terpin hydrate with heroin should be differently colored in order to avoid confusion.—*Ibid.*, p. 116.

Beringer, George M., thinks that the formula for elixir of terpin hydrate needs reconstruction. He would eliminate saccharin and improve the flavoring.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1069.

Dunning, H. A. B., suggests an increase of alcohol to 425 cc. and the replacement of one-half the sirup by water.—*Ibid.*, p. 1069.

Hilton, Samuel L., thinks that elixir of terpin hydrate is not a satisfactory formula. The addition of sirup is the disturbing factor.—*Pharm. Era*, 1909, v. 41, p. 254.

Nitardy, F. W., recommends replacing a part of the sirup in elixir of terpin hydrate N. F. with water to prevent the crystallization of sugar. He presents a formula which he has used with good results.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1056.

Posey, H. G., asserts that the sirup should be omitted. The alcoholic content is not too great, and both alcohol and glycerin are necessary to hold the terpin hydrate in solution. Water should take the place of sirup in this formula.—*Ibid.*, p. 986.

Bruder, Otto E., thinks that elixir of terpin hydrate N. F. could be improved by leaving out the sirup, as this answers no useful purpose.—*Ibid.*, p. 966.

Cook, E. Fullerton, reports a formula containing glycerin and little sugar.—*Ibid.*, p. 960.

Dunn, John A., finds that he has obtained satisfactory elixirs by increasing the amount of alcohol from 400 cc. to 436 cc., omitting the simple sirup altogether and making up the 1,000 cc. with glycerin.—*Ibid.*, p. 954.

Diehl, C. L., reports from the committee on N. F. recommending the modification proposed by E. H. Squibb. This overcomes the tendency to separate out terpin hydrate when exposed to a low temperature.—*Ibid.*, p. 1069.

#### ELIXIR TERPINI HYDRATIS CUM HEROINÂ N. F.

Posey, H. G., thinks that a sufficient amount of caramel or compound tincture of cudbear should be added to elixir of terpin hydrate with heroine to produce a definite shade of color, both in order to distinguish this from the elixir containing codeine and because custom demands a light-brownish product.—*Ibid.*, p. 987.

Diehl, C. L., reports from the committee on N. F. recommending changing the name "Heroina (Heroine)" in the title to "Acetyl-Morphina (Acetyl-Morphine)."—*Ibid.*, p. 1069.

#### ELIXIR VIBURNI OPULI COMPOSITUM N. F.

Bruder, O. E., asserts that the name "Compound elixir of cramp bark" should be changed to "Compound elixir of trillium," for the reason that it is more brief, because trillium is the most important ingredient, and also to avoid confusion with compound tincture of cramp bark.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 232. Also Proc. Am. Pharm. Ass., 1909, v. 57, p. 966.

Meyer, C. L., points out that the compound elixir of viburnum opulus contains approximately 16 constituents, and that it is practically impossible to make a satisfactory preparation.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 116.

## ELIXIR ZINCI VALERIANATIS N. F.

Posey, H. G., asserts that elixir of zinc valerianate could be advantageously dropped. If, however, it is continued, the title should be changed in harmony with modern nomenclature.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 987.

## EMPLASTRA.

Kilmer, Fred B., discusses at length the plasters of the U. S. P., and thinks the list should be largely increased.—Proc. New Jersey Pharm. Ass., 1909, pp. 105–112.

An abstract outlines the proposed German formulas for adhesive plaster and the adhesive plaster with zinc oxide.—Schweiz. Wchnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, pp. 467, 468.

Budde, Th. (Veröff. a. d. Gebiet. des Militär-Sanitätswesen 1909, Heft 41, III, S. 58), discusses the making of rubber adhesive plaster, and presents a modified formula for a preparation that is adhesive, and yet devoid of irritating properties.—Chem. Repert., Cöthen, 1909, v. 33, p. 398.

Dieterich and Mix, in a discussion on the valuation of galenical preparations, enumerate the requirements for the several Ph. Germ. IV, and some unofficial, plasters.—Pharm. Zentralh., 1909, v. 50, p. 727.

Dieterich, Karl, points out that for the official plasters pharmacopœias might prescribe their physical properties, adhesiveness, color, and odor.—*Ibid.*, p. 540.

Mittelbach, William, comments on the official formulas for plasters and presents a method for spreading plasters.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 816.

Ranwez, Fernand, describes and illustrates an apparatus for the spreading of rubber plasters.—Ann. d. pharm., Louvain, 1909, v. 15, p. 385.

Caldwell, Paul, asserts that mustard paper, together with adhesive, belladonna, capsicum, mercurial, opium, soap, and other plasters should be dropped, for the reason that the pharmacist has no more interest in them than an old maid in her birthday. These products are public property, and the pharmacist need answer no questions in selling them.—Bull. Pharm., 1909, v. 23, p. 115.

Posey, H. G., thinks that aromatic plaster and compound tar plaster could be well omitted from the N. F.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 987.

## EMPLASTRUM ADHESIVUM.

Schillberg, A. J., discusses the production of adhesive plaster and presents a formula for a rubber base plaster.—Svensk. farm. Tidskr., 1909, v. 13, pp. 145–147.



Mittelbach, William, thinks that the formula for adhesive plaster is very good. When pure rubber is used, straining the product is not necessary.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 816.

Kilmer, Fred B., recommends that the mass or base introduced into the U. S. P. VIII under the head of "Adhesive plaster" be abandoned, and a mass or base more nearly resembling that of the lead plaster of 1890 be restored.—Proc. New Jersey Pharm. Ass., 1909, p. 112.

An unsigned article discussing rubber adhesive plaster points out that the production of this article is but infrequently attempted in the laboratory of the apothecary, despite the fact that many pharmacopœias contain formulas for this preparation.—Pharm. Ztg., Berl., 1909, v. 54, p. 507.

Düsterbehn calls attention to the Ph. Fr. V formula for adhesive plaster and points out the extent to which it differs from that in the Ph. Germ. IV.—Apoth. Ztg., Berl., 1909, v. 24, p. 229.

#### EMPLASTRUM AROMATICUM N. F.

Diehl, C. L., reports from the committee on N. F. the recommendation that the formula for aromatic plaster be modified.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1069.

#### EMPLASTRUM FUSCUM CAMPHORATUM N. F.

Diehl, C. L., reports from the committee on N. F. the suggestion to drop or modify camphorated brown plaster and to delete the note.—*Ibid.*, p. 1069.

#### EMPLASTRUM HYDRARGYRI.

Mittelbach, William, thinks the formula for mercurial plaster is not satisfactory.—*Ibid.*, p. 816.

#### EMPLASTRUM PLUMBI.

Bergh, Gustaf Fr., reviews some of the literature relating to lead plaster, reports observations on a comparative study of different samples of the commercial article, and presents a formula for lead plaster to be made by treating lead oxide with a mixture of oleic and stearic acids.—Svensk. farm. Tidskr., 1909, v. 13, pp. 253-256, 273-277.

Mittelbach, William, thinks that the formula for lead plaster is very good.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 816.

A "Casual Writer" points out that diachylon is one article which it may frequently be desirable to refuse to supply, as grave risk will attach to anyone who sells Emplastrum Plumbi in the unspread form, especially to a woman.—Pharm. J., Lond., 1909, v. 28 (82), p. 149.

An editorial (N. York M. J., 1909, v. 89, p. 341) discussing diachylon as a poison says: "Now that it has sunk so low as to be vended as an abortifacient by midwives and disreputable apothecaries, it may as well be dropped altogether."

#### EMULSA.

Dunning, H. A. B., in discussing suspending agents for emulsions, asserts that he has found the phosphatic type of emulsion to stand long storage the best. Acacia produces a very smooth and perfect emulsion, but separation soon takes place. Tragacanth gives a permanent suspension, but the resulting emulsion is not smooth. He thinks that a combination of acacia and tragacanth is the most perfect emulsifying agent.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 126.

Pollard, E. W., discusses commercial emulsions and presents a number of microphotographs of samples from various sources.—Pharm. J., Lond., 1909, v. 29 (83), pp. 135-139. Also Year-Book of Pharmacy, Lond., 1909, pp. 266-278.

Marshall, C. R., discusses the theory of emulsification, the permanence of an emulsion, and illustrates his paper with a number of microphotographs and diagrams.—Pharm. J., Lond., 1909, v. 28 (82), pp. 257-266.

A "Casual Writer" calls attention to the desirability of pharmacists becoming familiar with the theory of emulsification so that they may be in position to regard practical pharmacy and dispensing as rational applications of mechanics and physics rather than the performance of mere rule-of-thumb mixing operations.—*Ibid.*, p. 325.

Havenhill, L. D., thinks the N. F. formulas for emulsions could with advantage be made less imposing and more specific. Failure to produce a satisfactory emulsion he traces, generally, to a disregard of the proper proportion of ingredients, too much time spent in the operation, and lack of proper attention to the utensils used.—Proc. Kansas Pharm. Ass., 1909, p. 62.

A number of formulas for emulsions to be included in the B. P. C. are reprinted.—Pharm. J., Lond., 1909, v. 28 (82), pp. 766-767.

Craig, Hugh, presents a formula for extract of malt with cod liver oil as an addition to the National Formulary.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 1153-1154.

Posey, H. G., thinks that each formula for emulsion should have a definite quantity of flavoring agent appended to it. He thinks that 3 of the 6 N. F. cod liver oil emulsions could well be dispensed with, leaving the emulsion of cod liver oil with extract of malt, and the emulsion of cod liver oil with wild cherry, and adding a formula for an egg emulsion of cod liver oil.—*Ibid.*, p. 987.

Stevens, A. B., presents some notes on emulsions together with his conclusions.—*Ibid.*, pp. 974-975.

Diehl, C. L., reports from the committee on N. F. concluding that 50 per cent emulsions do not separate as quickly as 40 per cent emulsions. Alcohol is not necessary as a preservative for emulsions that are to be kept for a few weeks.—*Ibid.*, p. 1070.

#### EMULSUM OLEI MORRHUÆ.

McWalter, J. C., in advocating the addition of emulsio ol. morrhue to the Ph. Brit. asserts that all physicians order cod liver oil or petroleum emulsions.—Chem. & Drug., Lond., 1909, v. 74, p. 20.

Schamelhout, A., notes that the French emulsion of cod liver oil contains about one-third of its weight of the oil; the Belgian product is 50 per cent oil; both are emulsified with a decoction of carraheen.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 11.

Düsterbehn points out that the Ph. Fr. V emulsion of cod liver oil is made by shaking a mixture of cod liver oil, flavoring ingredients, and simple sirup with a hot decoction of Irish moss, and continuing the shaking until cold.—Apoth. Ztg., Berl., 1909, v. 24, p. 229.

Diehl, C. L., reports from the committee on N. F. the recommendation that the introductory remarks under typical emulsions be deleted; also that the note to acacia emulsion of cod liver oil be deleted, and that Irish moss emulsion of cod liver oil and dextrin emulsion of cod liver oil be deleted.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1070.

Cook, E. Fullerton, thinks that glyconin emulsion of cod liver oil is not satisfactory.—*Ibid.*, p. 961.

#### EMULSUM OLEI MORRHUÆ CUM HYPOPHOSPHITIBUS.

Fussell, M. H., thinks that emulsion of cod liver oil with hypophosphites should be relegated to the National Formulary.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 205.

#### EMULSUM PETROLEI N. F.

Diehl, C. L., reports from the committee on N. F. recommending a change in title to "Emulsum petrolatum." Also the use of yellow petrolatum and increasing the amount to 250 gm.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1070.

Hilton, Samuel L., points out that emulsion of petroleum is not satisfactory, for it does not keep.—Pharm. Era, 1909, v. 41, p. 254.

Cook, E. Fullerton, thinks the formula for emulsion of petroleum very unsatisfactory. The emulsion separates quickly. It should contain calcium and sodium hypophosphites.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 961.

Posey, H. G., thinks that emulsion of petroleum N. F. is one of the poorest formulas in the whole book.—*Ibid.*, p. 987.

## EMULSUM PHOSPHATICUM N. F.

Hilton, Samuel L., asserts that the formula for phosphatic emulsion is far different from the original formula that was originated in Washington, D. C., by S. C. Busey and W. S. Thompson.—*Pharm. Era*, 1909, v. 41, p. 254.

Bruder, Otto E., thinks that a change could be made in the working directions for phosphatic emulsion that would tend to make a more stable emulsion and be more in harmony with good pharmacy.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 966.

Diehl, C. L., reports from the committee on N. F. recommending a change in title to "Emulsum Olei Morrhue Phosphaticum." No other change is recommended unless it be to use wine in place of Jamaica rum.—*Ibid.*, p. 1070.

## EPINEPHRINA.

McWalter, J. C., asserts that adrenalin or some imitation must, of course, be in the next Ph. Brit., although many are afraid to declare it is only of limited and transitory utility.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 20.

Thrush, M. Clayton, recommends that the active principle of the adrenal gland be made official, 1:1000 in normal salt solution. He asserts that only about 1 physician in 1,000 uses the gland, all others always use the active principle.—*J. Am. M. Ass.*, 1909, v. 53, p. 793.

Düsterbehn points out that under the name adrenalinum the Ph. Fr. V requires that it consist of a white, odorless, slightly bitter tasting microcrystalline powder, which on slow heating to 215° and on more rapid heating to 305°, melts, and at higher temperatures decomposes.—*Apoth. Ztg.*, Berl., 1909, v. 24, p. 249.

Freund, Moritz Max, describes a method of producing pure solution of the effective principle of the suprarenal gland or paranephros.—*Chem. News*, Lond., 1909, v. 99, p. 89.

Mannich, C., discusses the chemistry of adrenalin and the syntheses in the series of adrenalin.—*Arb. a. d. pharm. Inst. d. Univ. Berl.*, (1909) 1910, v. 7, pp. 209–212. Also *Apoth. Ztg.*, Berl., 1909, v. 24, pp. 60–61.

Böttcher, Karl, outlines a new synthesis for suprarenin and related compounds.—*Ber. d. deutsch. chem. Gesellsch.*, Berl., 1909, v. 42, pp. 253–266.

Pauly, H., criticises the claims made by Böttcher that he has been able to produce synthetic adrenalin (suprarenin) by a new method.—*Ibid.*, pp. 484–485.

Breteau, P., presents a note on syntheses in the adrenalin series.—*J. d. pharm. et d. chim.*, Par., 1909, v. 29, pp. 526–529.

Flächer, Franz, discusses the cleavage of the synthetic dl-suprarenin into its optically active constituents.—*Ztschr. f. physiol. Chem.*, 1908-9, v. 58, pp. 189-194. See also *Pharm. J., Lond.*, 1909, v. 28 (82), p. 27.

Tutin, Caton, and Hann review some of the observations on syntheses in the epinephrine series.—*J. Chem. Soc., Lond.*, 1909, v. 95, pp. 2113-2126.

Fisk, F. M., asserts that adrenalin crystals, whether small or large depend upon the state of concentration of the solution from which it is crystallized. As a rule, the more concentrated the solution the smaller are the crystals obtained.—*Pharm. J., Lond.*, 1909, v. 29 (83), p. 592.

Martin, William, in discussing the biochemical standardization of epinephrine, points out that chemical methods are not nearly so delicate as observations made on the blood pressure of certain animals under certain conditions.—*Ibid.*, p. 150. Also *Year-Book of Pharmacology, Lond.*, 1909, pp. 243-245.

Rieder, Karol, reports observations on the impermeability of the skin of the frog to adrenalin.—*Arch. f. exper. Path. u. Pharmacol., Leipz.*, 1908-9, v. 60, pp. 408-419.

Comessatti, Giuseppe, reports observations on the value of the Meltzer reaction on the frog's eye, for determining the strength of adrenalin and adrenalin-like preparations.—*Ibid.*, pp. 233-243.

Abderhalden and Müller report observations on the behavior of the blood pressure after intravenous injection of l-, d-, and dl-suprarenin.—*Ztschr. f. physiol. Chem.*, 1908-9, v. 58, pp. 185-188. See also v. 59, pp. 22-28 and 129-137.

Kautzsch and Müller report some additional studies on the physiological behavior of l- and d-suprarenin.—*Ibid.*, pp. 404-409.

Waterman, N., reports a number of experiments with d-suprarenin.—*Ibid.*, v. 63, pp. 290-294.

Schultz, W. H., reports quantitative pharmacological studies: On adrenalin and adrenalin-like bodies, and concludes in part that—

1. The blood pressure method with dogs under morphine-ether anaesthesia, the vagi cut, and very small doses of curare, is the most accurate pharmacological assay for catechol derivatives.

2. The pupil method as modified by the author is a reliable assay for adrenalin but less delicate and more tedious than the blood pressure method.

3. Synthetic dl-adrenalin is less active as a vaso-constrictor and as a mydriatic than natural l-adrenalin, the ratio being 2:3.—*Bull. Hyg. Lab., U. S. P. H. & M.-H. S.*, 1909, No. 55, p. 70. See also *J. Pharm. & Exper. Therap.*, 1909-10, v. 1, pp. 291-302.

Cushny, Arthur R., in a further note on adrenalin isomers, reports work done with synthetic l- and d- adrenalin. His results indicate

that l- adrenalin acts on the blood pressure 12 to 15 times as strongly as d adrenalin, and the doses necessary to cause glycosuria are similarly in the proportion 12 to 18:1.—J. Physiol., 1909, v. 38, pp. 259–262. See also Pharm. J., Lond., 1909, v. 28 (82), pp. 56–57.

Wiggers, Carl J., discusses the effect of adrenalin on intestinal hæmorrhage and its ineffectiveness in pulmonary hæmorrhage.—Arch. Int. M., 1909, v. 3, pp. 139–158, 360–367. Also J. Pharm. & Exper. Therap., 1909–10, v. 1, pp. 341–348.

McGee, J. B., asserts that adrenalin is an agent typical of the various suprarenal principles under different names.—Merck's Arch., 1909, v. 11, p. 82.

Seifert, Otto, points out that the side actions of the suprarenal preparations are secondary hæmorrhages, necrosis at the point of injection and delay in the healing of wounds.—Apoth. Ztg., Berl., 1909, v. 24, p. 46.

Barton, Wilfred M., controverts the claim that adrenalin chloride solution hypodermically injected is a sovereign method for raising the blood pressure and producing cardiac stimulation. In order to secure this effect the drug must be injected directly into the blood vessels.—J. Am. M. Ass., 1909, v. 52, p. 1559.

For references in which the word adrenalin is evidently used in the generic sense see Fränkel and Allers.—Biochem. Ztschr., Berl., 1909, v. 18, pp. 40–43; Kothe, R., Therap. d. Gegenw., 1909, v. 50, pp. 95–104; Pollak, Leo, Ztschr. f. physiol. Chem., 1909, v. 68, pp. 69–74. Also Index to Biochem. Centralbl. for 1908–9 and Jahresb. ü. Tier-Chem., 1909, Wiesb., 1910, v. 39.

Additional references on the chemistry, pharmacology, and uses of epinephrine and related compounds will be found in Chem. Abstr. Am. Chem. Soc., Index Medicus and J. Am. M. Ass.

### ERGOTA.

A committee of Section III, Second International Congress for the Suppression of Adulterations (Paris, 1909), proposes as the definition of ergot: Sclerotium formed by the *Claviceps purpurea* Tul. on the ovary of *Secale cereale* L., and gives its characters.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 357.

Schamelhout, A., states that, according to the above definition, ergot should leave not more than 1.5 per cent ash, and contain at least 0.1 per cent alkaloids; there is no indication of this kind in the Ph. Belg. III.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 337.

Umney, J. C., asserts that the requirement, that ergot should contain 0.1 per cent of alkaloids as a minimum, is of considerable importance at this time, when practically all ergot standardization is physiological, and no chemical method has been recognized.—Chem. & Drug., Lond., 1909, v. 75, p. 580.

The committee of reference in pharmacy asserts that the minimum length of ergot should be increased to 1.5 cm.—*Ibid.*, 1909, v. 74, p. 292.

Caesar & Loretz (Geschäfts-Ber., 1909, pp. 49–51) point out that thorough drying and careful keeping is essential in connection with ergot, if this drug is to retain its therapeutic value. They present a report by G. Fromme who reviews some of the recent literature bearing on the chemistry and physiological properties of ergot.

Vanderkleed, C. E., reports the quality of ergot for the past year as very poor, partly because last year was a bad one for ergot.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 24.

He reports 24 assays of ergot, lowest 0.043, highest 0.270 per cent cornutin of Keller, 16 above and 8 below standard.—*Ibid.*, p. 129.

Pearson, W. A., reports on two lots of ergot of excellent quality, both of which were proved to be very active.—*Ibid.*, p. 180.

Dohme and Engelhardt report that with one exception, the samples and shipments of ergot received were chemically and physiologically of very good quality. One sample was physiologically inactive, and the chemical examination showed that the drug contained hardly any cornutin.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 715.

Southall Bros. & Barclay (Rep., 1908–9, Birmingham, 1910, p. 12) state that less variation than usual has been encountered in ergot as judged by the cold water extractive, the figures for 16 samples being from 16.9 to 24.4 per cent, average 20.8.

Caesar & Loretz (Geschäfts-Ber., 1909, pp. 101–103) describe the Keller-Fromme method of assay for cornutin in ergot; they also point out that the Ph. Helv. permits the presence of 5 per cent of ash.

Schamelhout, A., comments on the Ph. Fr. V and the Ph. Belg. III method for making extract and fluid extract of ergot.—*Bull. Soc. roy. d. pharm.*, Brux., 1909, v. 53, p. 13.

The committee of reference in pharmacy asserts that Ext. Ergotæ and Ext. Ergotæ Liq. should be evaporated at a temperature not exceeding 60° C.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 292.

Dunlap, Renick W., reports 2 samples of fluid extract of ergot examined; not passed.—*Rep. Ohio Dairy & Food Com.*, 1909, p. 59.

Rippetoe, John R., reviews experiments on the physiological action of fluid glycerate of ergot and concludes that hydro-alcoholic menstruum is superior to hydro-glycerin menstruum for making liquid preparations of this drug.—*Am. J. Pharm.*, Phila., 1909, v. 81, pp. 84–86.

Cronyn and Henderson discuss the pharmacy and pharmacology of ergot, and conclude that most galenical preparations of this drug contain considerable amounts of the active principles, but do not show any great or marked action when given per os. The usually

recommended doses are much too small.—*J. Pharm. & Exper. Therap.*, 1909-10, v. 1, pp. 203-219.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 3) point out that the most reliable results in the physiological standardization of ergot were obtained by employing the isolated uterus of the rabbit.

Meulenhoff, J. S., presents a review of the more recent investigations on the nature of the active constituents of ergot.—*Pharm. Weekblad.*, 1909, v. 46, p. 76 ff.

Wood, Horatio C., jr., outlines a new method for the chemical assay of ergot which depends on the quantitative determination of the per cent content of benzole extract, a substance which appears to be similar to the sphacelotoxin of Jacobi.—*Am. J. Pharm.*, Phila., 1909, v. 81, pp. 215-218.

Beal, J. H., in an editorial, discusses the unreliability of ergot, and calls attention to the recent investigations by Wood and Hoffer (*Univ. Pennsylvania Med. Bull.*, 1909, February) which seem to indicate that the commercial drug is even more unreliable than its reputation would indicate.—*Midl. Drug.*, 1909, v. 43, p. 175.

Hale, Worth, points out that ergot is not amenable to chemical control and that its value as a medicament is a strong indication of the need of developing physiological standards for this drug.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 87.

Martin, William, discusses the need for the biochemical standardization of ergot, and asserts that he is not satisfied that there is sufficient evidence to show that a liquid extract of ergot is necessarily inert clinically because it fails to give a rise of blood pressure in certain animals.—*Pharm. J.*, Lond., 1909, v. 29 (83), p. 149. Also *Year-Book of Pharmacy*, Lond., 1909, pp. 241-243.

Umney, John C., discusses the physiological testing of ergot preparations, points out some of the differences of opinion regarding the feasibility of physiological testing, and reports 3 different results obtained with a sample of fluid extract of ergot within a period of 28 days by different physiological experts.—*Pharm. J.*, Lond., 1909, v. 29 (83), p. 794.

An editorial (*Drug Topics*, New York, 1909, v. 24, p. 161) points out that the more ergot is studied by pharmacologists the less we seem to know about it. One by one the so-called active principles extracted by various investigators have been shown not to possess the activity attributed to them by their discoverers, and one by one assay processes, based on the determination of one or other of these constituents, have proved unreliable for determining the activity of the drug.

Barger and Dale report on the water-soluble active principles of ergot.—*Proc. Physiol. Soc.*, *J. Physiol.*, Lond., 1909, v. 38, pp. lxxvii-



lxxix. Also Arch. f. exper. Path. u. Pharmacol., Leipz., 1909, v. 61, pp. 113-132.

Barger, G., describes p-hydroxyphenylethylamine, an active principle of ergot, soluble in water.—Pharm. J., Lond., 1909, v. 29 (83), p. 141. Also Year-Book of Pharmacy, Lond., 1909, pp. 333-335.

Vahlen, E., reports observations made with clavin, the active constituent of ergot isolated by him. He also reports on ergotinin, hydroergotinin, and ergotoxin that were submitted to him by F. Kraft.—Arch. f. exper. Path. u. Pharmacol., Leipz., 1908-9, v. 60, pp. 42-75.

Schindelmeiser, J., presents observations on the enzymes present in ergot, and concludes that there are at least two different enzymes and that one of these has marked diastatic properties.—Apoth. Ztg., Berl., 1909, v. 24, pp. 837-838.

Winckel, Max, calls attention to the possible deleterious influence of the enzymes present in ergot.—Pharm. Post, Wien, 1909, v. 42, p. 835.

Tanret, C., describes a new base, obtained from ergot, to which he has given the name ergothioneine.—Compt. rend. Acad. d. sc., Par., 1909, v. 149, pp. 222-224. Also J. d. pharm. et d. chim., Par., 1909, v. 30, pp. 145-153.

An editorial (Merck's Arch., 1909, v. 11, pp. 300-301) discusses the chemistry of ergot and points out that it really seems as if the end of the period of uncertainty, so far as composition and physiological action are concerned, is approaching.

Heubner, Wolfgang, reviews the recent literature on the pharmacology of ergot and the possible use of some of the pure principles in therapeutics.—Therap. Monatsh., Berl., 1909, v. 23, pp. 660-663.

Hetherington, C. E., asserts that ergot is useful in the recurring hæmorrhage of the uterus, too long continued lochia, watery leucorrhœa, flabby uterus, and flabbiness everywhere.—J. Am. Inst. Homœop., 1909, v. 1, p. 141.

A number of references on the chemistry and pharmacology of ergot will be found in Jahresb. ü. Tier-Chem., 1909, Wiesb., 1910, v. 39, Index Medicus and J. Am. M. Ass.

#### ERIODICTYON.

Schneider, Albert, asserts that eriodictyon could no doubt be grown profitably on hillside lands in California. It is quite common on the coast hills of middle and northern California.—Pacific Pharmacist, 1909-10, v. 3, p. 192.

Beringer, George M., asserts that eriodictyon is always called for as yerba santa.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 812.

Tutin and Clewer report a chemical examination of eriodictyon in elaboration of the work done by Power and Tutin.—J. Chem. Soc., Lond., 1909, v. 95, pp. 81–87.

Beringer, George M., presents a formula for fluidglycerate of eriodictyon in which potassium hydroxide is used to facilitate extraction.—Am. J. Pharm., Phila., 1909, v. 81, p. 479. Also Proc. Am. Pharm. Ass., 1909, v. 57, p. 1013.

Diehl, C. L., reports from the committee on N. F., recommending a change in the first part of the directions.—*Ibid.*, p. 1086.

#### ESSENTIA PEPSINI N. F.

Bruder, Otto E., thinks that the name "essence" when applied to essence of pepsin is a misnomer, as an essence is a perfume or a modification of a perfume, either simple or compound.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 967.

Kebler, L. F., points out that the name "essence of pepsin" can not be trade-marked in the United States, because of its descriptive or generic character.—Pharm. Era, 1909, v. 41, p. 446.

Posey, H. G., thinks the formula for essence of pepsin is susceptible of two corrections, the first being the excess of pepsin and the second the use of Angelica or Malaga wine, decolorized with bone black. Commercially nearly all the pepsin essences contain 1 grain of pepsin to each fluidrachm.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 988.

Cook, E. Fullerton, reports the suggestion that if alcohol and water be used in proper proportions, replacing the wine in essence of pepsin, and then suitable flavor be added, the preparation will be far more uniform.—*Ibid.*, p. 961.

Goetting, E. C., thinks the formula for essence of pepsin N. F. is incomplete and furnishes a preparation that is quite unsatisfactory. He believes the essence should be made direct from the stomach of calves and hogs, and suggests that wine of pepsin and other liquid preparations of pepsin be deleted from the National Formulary.—D.-A. Apoth. Ztg., N. Y., 1909–10, v. 30, p. 30.

Hilton, Samuel L., thinks that essence of pepsin is a very satisfactory preparation if properly made, but care must be exercised in preparing the same, and the directions should be more explicit in regard to the methods of dissolving the pepsin and rennin. The wine used should be free from tannin, very light in color, and of full alcoholic strength, or fermentation will likely occur.—Pharm. Era, 1909, v. 41, p. 254.

Diehl, C. L., reports from the committee on N. F. recommending a change in title to "Liquor Pepsini et Rennini," and no objections are made to increasing the glycerin to 200 cc.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1070.

## EUCALYPTOL.

Schimmel & Co. (Semi-Annual Report, April, 1909, p. 142) assert that eucalytol is soluble to the extent of 55:100 of 70 per cent alcohol, 0.1:100 of glycerin, and in all proportions of 96 per cent alcohol, of olive oil, and of paraffin oil.

Merck, E. (Darmstadt), thinks it would be more practical to give the specific gravity of eucalyptol at 15° instead of density 0.940 at 0°, as given by the Ph. Fr. V.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 549.

Schimmel & Co. (Semi-Annual Report, April, 1909, p. 101), in discussing the Ph. Svec. IX requirements for eucalyptol, assert that good eucalyptol is always colorless. The melting point lies between +1 and +1.5°; congealing should, if necessary, be induced by rubbing the side of the vessel with a glass rod.

The Belgian inspectors of pharmacies report that they always find essence of eucalyptus mixed with terpene instead of pure eucalyptol.—J. d. pharm. d'Anvers, 1909, v. 65, p. 586.

Schamelhout, A., remarks that essence of eucalyptus should not be a synonym of eucalyptol; this is scientifically and commercially false.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 237.

Roure-Bertrand Fils (Sc. & Ind. Bull. Grasse, April, 1909, pp. 136–137, and October, 1909, p. 123) present a review of the recent literature relating to cineol.

See also under Oleum Eucalypti.

## EUCALYPTUS.

An editorial (Pacific Pharmacist, 1909–10, v. 3, p. 198) calls attention to the eucalypts, or gum trees, that were introduced in California, and points out that *Eucalyptus globulus*, generally called the blue gum, from its bluish-green leaves, is the variety successfully grown in California. Its rapid growth makes it a valuable acquisition to those lands where, in so many instances, there was such a great lack of forest trees of general utility.

Todd-White, A., calls attention to the value of eucalyptus in cases of hæmorrhage.—Eclectic Rev., 1909, v. 12, p. 368.

## EUGENOL.

Schimmel & Co. (Semi-Annual Report, April, 1909, p. 142) assert that eugenol is soluble to the extent of 110:100 of 70 per cent alcohol, 0.1:100 of glycerin, 3:100 (with opalescence) of paraffin oil, and in all proportions of 96 per cent alcohol and of olive oil.

v. Soden, Hugo, in discussing eugenol, points out that the specific gravity of this substance should be reduced to 1.071 and that it

should be required to be optically inactive.—Pharm. Ztg., Berl., 1909, v. 54, p. 250.

See also under *Oleum Caryophylli*.

### EUONYMUS.

Fussell, M. H., in recommending that euonymus be deleted from the Pharmacopœia, asserts that it is certainly not proved to be a hepatic stimulant.—Tr. Am. M. Ass., Sec. Pharm. and Therap., 1909, p. 204.

Capps, Pratt, McCrae, and Halsey recommend the deletion of euonymus and its preparations from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

Henkel, Alice, presents a description with an illustration of *Euonymus atropurpureus* Jacq., gives the pharmacopœial name and common names, discusses its habitat and range, describes the shrub and bark, and discusses its collection, prices, and uses.—Bull. Bur. Plant Ind., U. S. Dept. Agric., 1909, No. 139, p. 35.

Holm, Theo., describes and illustrates the structural characteristics of *Euonymus americanus* L. and *E. atropurpureus* Jacq.; also describes and illustrates the internal structure of the vegetative organs of *E. americanus* L.—Merck's Rep., 1909, v. 18, pp. 169–171.

The committee of reference in pharmacy suggests additional microscopic characters to identify the bark of euonymus more precisely.—Chem. & Drug., Lond., 1909, v. 74, p. 292.

### EUPATORIUM.

Capps, Pratt, McCrae, and Halsey recommend the deletion of eupatorium from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

### EXTRACTA.

Mittelbach, William, asserts that the solid extracts as a class are not very satisfactory. Dry or powdered extracts as made by manufacturers are extensively used in place of the official preparations and are preferable.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 818.

Schimmel, M. S., asserts that the U. S. P. process for making extracts is by no means practical, and no such process is employed by any of the manufacturers.—Pharm. Era, 1909, v. 42, p. 496.

Caldwell, Paul, asserts that it seems that the Pharmacopœia recognizes time as well as expense in directing most of the extracts to be made by evaporating the fluid extracts. In such cases it is useless to give space to an extract, and this includes cimicifuga, digitalis, euonymus, gentian, logwood, hyoscyamus, rhatany, leptandra, scopola, stramonium, and sumbul.—Bull. Pharm., 1909, v. 23, p. 115.

Snow, C. M., recommends the adoption of a general process for extracts, and points out that at the present time three different kinds of extracts are official. He thinks these should be described and a general formula be devised with such modifications as may be required for each kind.—Bull. Am. Pharm. Ass., 1909, v. 4, pp. 156–157.

Dieterich and Mix in a discussion on the valuation of galenical preparations enumerate the requirements for the Ph. Germ. IV and a large number of unofficial extracts.—Pharm. Zentralh., 1909, v. 50, pp. 727–729.

Astruc and Capilléry present a paper on the preparation of the aqueous extracts of the Ph. Fr. V, 1908, with tabular results of their findings by the Codex process and by lixiviation.—Bull. pharm. d. sud-est, 1909, v. 14, pp. 453–457.

Rosenthaler and Meyer present a comprehensive contribution to our knowledge of glucoside containing extracts.—Ztschr. d. allg. österr. Apoth.-Ver., Wien, 1909, v. 47, pp. 257–258, 265–266, 277–279, 288–291.

Knoll & Co. (Ludwigshafen a. Rh. Ger.) have been awarded a German patent (214,805, Aug. 25, 1908) for their method for preparing purified extracts from evacuant drugs.—Chem. Abstr. Am. Chem. Soc., 1910, v. 4, p. 497.

#### BEEF EXTRACT.

An editorial (Drug Topics, New York, 1909, v. 24, pp. 17–18) calls attention to Bulletin 114 of the Bureau of Chemistry, Department of Agriculture, containing data upon the value of the so-called meat extracts of commerce, and points out that the general conclusion of investigators is to the effect that meat extracts are not foods at all, and can not be considered as representing to any extent the food value of the meat from which they are prepared.

An editorial (J. Am. M. Ass., 1909, v. 53, p. 1744) calls attention to the discrepancy between the claims and the facts as to meat extracts and beef juices, shown by the report of the council on pharmacy and chemistry (*ibid.*, 1754). See also p. 2021.

The committee on adulteration reports that the variations of the contents of beef extract are considerable, it having obtained samples with ash amounting to about 40 per cent.—Proc. Maryland Pharm. Ass., 1909, p. 72.

Dohme and Engelhardt report that samples of beef extract varied much in composition, especially in the amount of ash. Preparations were found with as low as 14 and as high as 37 per cent of incombustible matter.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 714.

Pearson, W. A., examined three standard brands with the following results:

|                          | No. 1.           | No. 2.           | No. 3.           |
|--------------------------|------------------|------------------|------------------|
|                          | <i>Per cent.</i> | <i>Per cent.</i> | <i>Per cent.</i> |
| Moisture.....            | 13.4             | 12.5             | 30.2             |
| Ether extract (fat)..... | .18              | .22              | .61              |
| Asb.....                 | 24.1             | 28.2             | 14.8             |
| Proteid.....             | 42.8             | 46.18            | 44.81            |

Proc. Pennsylvania Pharm. Ass., 1909, p. 179.

#### PURIFIED EXTRACT OF LICORICE.

Posey, H. G., thinks that as purified extract of licorice is now official in the U. S. P., *Extractum Glycyrrhizæ Depuratum* should be dropped from the N. F.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 988.

Diehl, C. L., reports from the committee on N. F. the recommendation that purified extract of glycyrrhiza be dismissed.—*Ibid.*, p. 1070.

#### FEL BOVIS.

Beringer, George M., asserts that purified ox gall, as usually preferred and used, is in the form of a greenish yellow powder, and this should be recognized instead of the "soft solid" of "pilular consistence" directed.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 812.

Capps, Pratt, McCrae, and Halsey assert that the suggestion of the inclusion of bile salts in the U. S. P. seems worthy of consideration.—J. Am. M. Ass., 1909, v. 53, p. 792.

Schenck, Martin, presents a contribution to our knowledge of the chemistry of cholic acid.—Ztschr. f. physiol. Chem., 1909, v. 63, pp. 308-312.

Hammarsten, Olof, presents some observations on the color reaction of cholic acid with dilute hydrochloric acid.—*Ibid.*, 1909, v. 61, pp. 495-498.

An editorial (J. Am. M. Ass., 1909, v. 53, p. 1405) calls attention to the report of Long and Johnson (*ibid.*, p. 1412) on the purity of commercial bile salts.

Dixon, W. E., says that of the significance of cholagogues we know nothing, and it is doubtful if any pathological condition which we can diagnose exists in which we are able to say that it is desirable to increase the secretion of bile. Furthermore, there is only one cholagogue worthy of the name, and that is "bile salts." Yet the use of ox gall is almost extinct. Brit. M. J., 1909, v. 2, p. 540.

Ott and Scott discuss the action of bile and some of its constituents upon intestinal peristalsis and the circulation, and report a number of experiments illustrated by tracings.—*Therap. Gaz.*, 1909, v. 33, pp. 11-15.

#### **FERRI CARBONAS SACCHARATUS.**

Bachman, Gustave, reports that the saccharated ferrous carbonate examined was found to contain from 10.13 per cent to 16.62 per cent of ferrous carbonate.—*Proc. Minnesota Pharm. Ass.*, 1909, p. 71.

The Belgian inspectors of pharmacies report saccharated carbonate of iron as very frequently defective. The red carbonate, consisting largely of oxide, is still delivered.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 587.

Schamelhout, A., says that when the physician or the veterinarian prescribes simply carbonate of iron, the pharmacist should deliver the product of the old pharmacopœia; whatever may be its therapeutic value he need not concern himself; carbonate of iron is no synonym of saccharated carbonate.—*Bull. Soc. roy. d. pharm. Brux.*, 1909, v. 53, p. 258.

#### **FERRI CHLORIDUM.**

Lyons, A. B., points out that the U. S. P. requires that ferri chloridum "should contain not less than 22 per cent of metallic iron," and liquor ferri chloridi "should contain not less than 29 per cent of the anhydrous salt corresponding to 10 per cent of metallic iron." But 40 gm. of ferric chloride contain all the iron there is in 100 gm. of liquor ferri chloridi—i. e., 10 gm.—which would be 25 per cent instead of 22 per cent of 40 gm.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 800.

White, Edmund, describes ferric chloride and presents a number of tests for the article to be used as a reagent.—*Pharm. J., Lond.*, 1909, v. 28 (82), p. 274.

Caldwell, Paul, points out that ferric chloride is very deliquescent and unstable and is rarely used as such. Furthermore, there is the solution and the tincture, and where iron in solid form is wanted we have the official reduced iron.—*Bull. Pharm.*, 1909, v. 23, p. 115.

Dohme and Engelhardt report one shipment of iron chloride containing an excessive amount of iron oxychloride, and consequently it could not be used for making tincture of iron chloride.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 715.

Woods, Charles D., reports 4 samples of ferric chloride examined; 120, 102, 104, and 110 per cent of the U. S. P. standard. From 90 to 110 per cent of the U. S. P. standard is the range of variation permitted in the State of Maine.—*Rep. Maine Agric. Exper. Sta.* (1909), 1910, Ap., p. 184.

Schamelhout, A., points out that the French solution of perchloride of iron contains obviously 26 per cent of anhydrous perchloride of iron and has a density of 1.26; in Belgium, its density is 1.28 to 1.29 and it contains 29 per cent of the salt.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 14.

Rosengarten, Geo. D., points out that the test for oxychloride in solution of ferric chloride is not sufficiently exacting. It has been found that when tincture of iron chloride is made from a solution which meets the oxychloride test, the tincture subsequently becomes turbid, owing to an excess of oxychloride.—Am. Druggist, N. Y., 1909, v. 55, p. 366.

Bachman, Gustave, reports that the solution of ferric chloride examined corresponded to from 7.27 per cent to 9.95 per cent of metallic iron.—Proc. Minnesota Pharm. Ass., 1909, p. 71.

Benrath, Alfred, reports some observations on the reduction of iron chloride in the light of the mercury vapor lamp.—J. f. prakt. Chem., Leipzig, 1909, v. 80, pp. 283–287.

Dunn, John A., asserts that the 1860 formula for tincture of ferric chloride by which the solution of iron chloride is made with an excess of nitric acid gives a product containing more volatile ethers, consequently is more aromatic and agreeable to the patient. He presents a slight modification of the U. S. P. VIII formula, by means of which it is possible to practically duplicate the 1860 product.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 950.

Dunlap, Renick W., emphasizes the importance of keeping tincture of ferric chloride as provided by the Pharmacopœia. In many cases the reduction is so marked that the tincture practically contains only ferrous iron. The necessity for caution is more important to-day, as this product remains on hand for a much longer period.—Rep. Ohio Dairy & Food Com. (1909), 1910, p. 41. See also Midl. Drug. & Rev., 1909, v. 43, p. 355.

Scovell, M. A., reports tincture of ferric chloride deficient in alcohol.—Rep. Kentucky Agric. Exper. Sta. (1908–9), 1910, p. 7.

Woods, Charles D., reports 2 samples of tincture of ferric chloride examined; 109 and 111 per cent of the U. S. P. standard. From 90 to 110 per cent of the U. S. P. standard is the range of variation permitted in the State of Maine.—Rep. Maine Agric. Exper. Sta. (1909), 1910, App. p. 184.

Hill, Edward C., reports one sample of tincture of muriate of iron which was found to be adulterated and below standard; misbranded because labeled "Tincture of muriate of iron" when below standard.—Bull. Colorado Bd. Health, 1909, v. 9, No. 4, p. 13.

Baird, J. W., quotes L. A. Thompson's report on 25 samples of tincture of ferric chloride of which 7 samples were below the U. S. P.



requirement and 4 samples contained nitric acid.—*Proc. Massachusetts Pharm. Ass.*, 1909, p. 123.

Bachman, Gustave, reports that tincture of ferric chloride was found to correspond to from 3.67 per cent to 4.61 per cent of metallic iron.—*Proc. Minnesota Pharm. Ass.*, 1909, p. 71.

Thompson, F. S. C. (*Indian Med. Gaz.*, June, 1909), discusses the treatment of pneumonia by iron and gives two formulas. For further details see abstract.—*J. Am. M. Ass.*, 1909, v. 53, p. 820.

Rossiter, P. S. (*U. S. Naval Med. Bull.*, July, 1909), reports successful results from the treatment of elephantiasis by internal administration of tincture of iron chloride.—*Ibid.*, 1909, v. 53, p. 654.

An editorial (*Brit. M. J.*, 1909, v. 2, p. 1423), discussing the absorption and excretion of iron, calls attention to a recent monograph by Schirokauer. It would seem to be a matter of indifference whether an organic or inorganic preparation be used, if the digestive power be normal, Schirokauer having expressed the belief that iron in any form is at once converted in the stomach to ferric chloride.

#### FERRI ET AMMONII CITRAS.

The Belgian inspectors of pharmacies report that the composition of citrate of iron is inconstant and that the content of iron oxide varies within considerable limits. The Ph. Belg. sets a minimum limit of ferric oxide, but this limit is sometimes greatly exceeded, to the detriment of the solubility of the product; at other times the quantity of ferric oxide does not reach 20 per cent.—*J. de pharm. d'Anvers*, 1909, v. 65, p. 587. See also *Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 257.

Riedel's *Berichte* (Berlin, 1909, p. xliv) presents a monograph for a green iron and ammonium citrate, and enumerates its properties and a number of tests.

Patch, E. L., reports iron and ammonium citrate, containing from 17.3 to 20.2 per cent iron.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 733.

A committee of the *Syndicat général de la Droguerie française* asks that a lower percentage of iron be tolerated in iron and ammonium citrate [18 per cent Ph. Fr. V].—*Bull. sc. pharmacol., Par.*, 1909, v. 16, p. 288.

Morse, John Lovett, discusses the treatment of anæmia in infancy with citrate of iron administered subcutaneously.—*J. Am. M. Ass.*, 1909, v. 53, p. 107.

de Amicis (*Il Morgagni*, 1909, No. 2), in order to avoid the troubles produced by the injection of an excessive dose of iron, employs a concentrated solution corresponding to 0.10 gm. of the salt in 0.2 cc. in place of 1 cc. ordinarily employed.—*Nouv. remèdes*, 1909, v. 25, p. 504.

**FERRI ET AMMONII SULPHAS.**

White, Edmund, discusses iron and ammonium sulphate, calls attention to the trade varieties and the tests to which this substance, used as a reagent, should comply.—*Pharm. J., Lond.*, 1909, v. 28 (82), p. 274.

**FERRI ET POTASSII TARTRAS.**

Patch, E. L., reports on 3 lots of iron and potassium tartrate containing ammonia and 3 not.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 733.

The Belgian inspectors of pharmacies report that iron and potassium tartrate is sometimes poorly prepared, incompletely soluble in water. Sometimes also it contains ammoniacal salts.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 587.

Schamelhout, A., remarks that the quality of this product, which had been better, seems again to have become bad. It should therefore be looked after.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 258.

**FERRI ET QUININÆ CITRAS.**

Moerk, Frank X., discussing the alkaloidal assay of iron and quinine citrate and its soluble form, suggests that the weight directed be increased to 2 gm. so as to yield a weight of alkaloid approaching that obtained in the assay of the drug, also to correspond to a change suggested in the iron assay.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 925.

Calliess, W., outlines a method for determining the composition of citrate of iron and quinine. He points out that for determining the alkaloid it is quite necessary to have the material in solution.—*Apoth. Ztg., Berl.*, 1909, v. 24, pp. 159-160.

**FERRI ET STRYCHNINÆ CITRAS.**

Moerk, Frank X., discussing the alkaloidal assay of iron and strychnine citrate, suggests that the weight be increased to 5 gm. to correspond to a change in the iron assay; as the weight of strychnine obtained, 0.045 to 0.05 gm. is small, it might be well to determine it volumetrically, as it will be equivalent to 6.8 to 7.55 cc. N/50 KOH. solution.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 925.

**FERRI HYPOPHOSPHIS.**

Posey, H. G., asserts that hypophosphite of iron is an article of commerce easily obtainable and the formula for making it should be omitted from the N. F.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 988.

Diehl, C. L., reports from the committee on N. F. the recommendation that the formula for hypophosphite of iron be deleted.—*Ibid.*, p. 1071.

Barton, Wilfred M., quotes Cushny's statement that the chief effect of iron hypophosphites is due to the metallic iron. He considers the idea, that the phosphates are beneficial in neurasthenia and cachectic states to be fallacious.—*J. Am. M. Ass.*, 1909, v. 52, p. 1560.

#### **FERRI PHOSPHAS SOLUBILIS.**

Dunn, John A., outlines a formula for making a "green" soluble ferric phosphate.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 948.

Patch, E. L., reports assays of soluble ferric phosphate, containing 12.6 to 14.4 per cent of iron.—*Ibid.*, 1909, v. 57, p. 733.

Massinger, O. L., asserts that if we only knew all about ferrum phos. how our eyes would open and we should wonder why we did not know its action long ago. He asserts that this remedy has an action in diseased conditions very similar to aconite, belladonna, gelsemium, bryonia, china, phosphorus, and a few others. It covers in its action all inflammatory conditions of the body, whether of an active or passive nature.—*J. Therap. & Diet.*, 1909-10, v. 4, pp. 318-321.

#### **FERRI SULPHAS.**

White, Edmund, describes ferrous sulphate, enumerates the trade varieties, and presents a number of tests for the article to be used as a reagent.—*Pharm. J., Lond.*, 1909, v. 28 (82), p. 274.

The Belgian inspectors of pharmacies report that iron sulphate rarely conforms to the pharmacopœial description which requires it to be in the form of crystalline powder, washed with alcohol.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 588. See also *Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 259.

Bachman, Gustave, reports that the ferrous sulphate examined was 98.23 per cent to 99.4 per cent pure.—*Proc. Minnesota Pharm. Ass.*, 1909, p. 70.

Army, H. V., reports 3 samples of ferrous sulphate examined which were up to the requirements of the U. S. P.—*Proc. Ohio Pharm. Ass.*, 1909, p. 67.

LaWall, Charles H., reports that the commercial dried and powdered ferrous sulphate contains about 2 per cent of water.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 370.

Wells, Roger C., reports observations on the electrical conductivity of ferric sulphate solutions.—*J. Am. Chem. Soc.*, 1909, v. 31, pp. 1027-1035.

Sargeant, F. Pilkington, asserts that iron sulphate is used as a fungicide, but it is not nearly so efficacious as copper sulphate. It is

used for the destruction of charlock, poppy, dodder, etc.—Pharm. J., Lond., 1909, v. 29 (83), p. 236. See also Drug Topics, New York, 1909, v. 24, p. 356.

#### FERRUM.

Lyon, S., (Clin. therap.) discusses the principal ferruginous preparations. He states that iron is best tolerated by the hypopeptics or the apo-peptics. The employment of hydrochloric acid facilitates its absorption. More efficacious still is the addition to the iron of a small dose of sodium phosphate, 10 to 20 or 30 centigrammes per dose.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, pp. 111-114.

Tarbouriech and Saget describe a variety of vegetable organic iron derived from *Rumex obtusifolius* (species mistakenly diagnosed as *R. crispus*).—Bull. sc. pharmacol., Par., 1909, v. 16, pp. 258-260. See also Nouv. remèdes, 1909, v. 25, pp. 392-395.

The editor of the "Therapeutics" column (J. Am. M. Ass., 1909, v. 53, p. 1030) deprecates the prescribing of proprietary iron products in dollar bottles, no matter how elegant they may be. He asserts that the disturbances generally caused by the administration of iron are due to the fact that too large a dose is given. He commends drop doses of the tincture of the chloride in a little clean lemonade or orangeade as sufficient to satisfy the blood need, and adds that the 3-grain sugar of iron tablet, the Bland pill, and the reduced iron capsule are the only forms of iron positively needed in the Pharmacopœia.

#### FERRUM REDUCTUM.

Gane and Webster believe that the U. S. P. limit for arsenic in reduced iron is too severe. They also comment on the assay process for this product, and point out that reduced iron is liable to deteriorate on keeping.—Drug Topics, New York, 1909, v. 24, p. 69.

Umney, J. C., points out that in the proposed international standard for reduced iron the percentage of metallic iron required is 80, a fair limit; that of the Ph. Brit. being 75 and the U. S. P. and Ph. Germ. 85. In this instance the requirement is important that it should not contain arsenic. The limit that he has suggested as a fair one is 1 part in 2,000. (See Chem. & Drug., Nov. 15, 1902, p. 823).—Chem. & Drug., 1909, v. 75, p. 581.

Southall, A. W., thinks that the standard in the Ph. Brit. for reduced iron should be greatly raised, seeing that the U. S. P. requires 90 and that it is quite possible to get a 95 per cent pure preparation.—Pharm. J., Lond., 1909, v. 28 (82), p. 366.

Alcock, F. H., thinks that the 95 per cent pure reduced iron would keep better than the low percentage variety, because the decomposition having started might continue throughout the whole mass.—*Ibid.*, p. 366.

Havenhill, L. D., thinks that a careful working over of both the qualitative and quantitative tests for reduced iron is needed and might result in improvement.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 800.

Coblentz and May outline a method to replace that now official in the U. S. P. for assaying ferrum reductum. They also report an examination of the commercial samples of reduced iron, the per cent content of total iron of which varied from 97.61 to 99.02 per cent.—*Ztschr. f. ang. Chem.*, 1909, v. 22, pp. 1224–1227. See also Merck's Rep., 1909, v. 18, pp. 165–167.

Dohme and Engelhardt report finding in several shipments an excess of sulphides, and in some instances a deficiency in iron. Several samples assayed from 80 to 90 per cent.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 717.

Sayre and Zieffle report 1 sample of reduced iron examined, which was below standard.—*Bull. Kansas Bd. Health*, 1909, v. 5, D. A., 16–23.

The committee on adulteration reports that the iron by hydrogen examined by them contained very little reduced iron and was unfit for sale.—*Proc. Maryland Pharm. Ass.*, 1909, p. 74.

Patch, E. L., reports that 10 lots reduced iron assayed 91.3 to 96.2 per cent, but gave excess of sulphide.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 733.

Scoville, W. L., reports reduced iron assaying 81.2 to 96.2 per cent.—*Ibid.*, p. 733.

Gane, E. H., reports that unless very carefully stored reduced iron rapidly oxidizes, and may lose 15 to 25 per cent in a month. The U. S. P. allows 10 parts arsenic per million, while most samples assay 50 parts.—*Ibid.*, p. 733.

Baird, J. W., quotes from L. O. Tayntor's report on 11 samples of reduced iron, which assayed practically 90 per cent or more of the required per cent of iron. The highest was 96.7 per cent. Seven contained sulphide, and all were free from arsenic.—*Proc. Massachusetts Pharm. Ass.*, 1909, p. 123.

The Belgian inspectors of pharmacies report as adulterations of reduced iron, sulphur, and phosphorus and often a large proportion of oxide.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 586.

Schamelhout, A., asserts that certain drug houses deliver ground iron for reduced iron.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 288.

A committee of the Syndicat général de la Droguerie française asks that traces of sulphide and oxide be tolerated in reduced iron.—*Bull. sc. pharmacol. Par.*, 1909, v. 16, p. 288.

Poulenc Frères state that the best commercial products show not much over 80 per cent of metallic iron and always contain sulphides.—*Ibid.*, p. 409.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 30) state that 2 samples of reduced iron examined proved quite satisfactory, giving 86.73 and 91.40 per cent of metallic iron, and containing 40 and 45 parts of arsenic per million, respectively.

Boldt, H. J., finds reduced iron one of the most useful of the iron preparations, because of its fairly good solubility in the gastric juice and its comparative tastelessness. It has the very objectionable feature, however, of causing eructations; in such cases he uses the carbonate. In anaemia and chlorosis he uses large doses, but cautions against giving it for too long a period.—N. York M. J., 1909, v. 89, p. 371.

#### FIGUS.

The Secretary of the U. S. Department of Agriculture points out that information secured by the department indicates that many of the packing houses in which figs have been packed in foreign countries are very insanitary and unhygienic, and that the products of these establishments constitute a distinct menace to the public health.—Ann. Rep. U. S. Dept. Agric. for 1909, 1910, p. 38.

#### FLUIDEXTRACTA.

Caldwell, Paul, enumerates a number of fluid extracts which he suggests might be deleted from the U. S. P.—Bull. Pharm., 1909, v. 23, p. 115.

Snow, C. M., advocates the adoption of general formulas for fluid extracts, and thinks that the adoption of this method would have many advantages.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 90. See also p. 156.

Rosenthaler, L. (Südd. A.-Ztg.), discusses the production of fluid extracts, and points out the difficulty of determining when a drug is exhausted. He recommends the development of a series of tests to determine the point at which the active ingredients are exhausted, and to cease percolating at this point so as to avoid overloading the resulting preparation with inert materials.—J. d. pharm. v. Elsass-Lothr. 1909, v. 35, pp. 109-111. See also D.-A. Apoth. Ztg., N. Y., 1909-10, v. 30, p. 22.

Wooyenaka, Keizo, points out that the Ph. Japon. III includes only a few (6) formulas for fluid extracts. This he considers a rather strange contrast to nearly 85 or 86 varieties in the United States Pharmacopœia.—Am. Druggist, N. Y., 1909, v. 54, p. 261.

Dunn, John A., points out that in making fluid extracts a menstruum must be chosen which will dissolve all the active principles of the drug in the quantity of the liquid that can be used. He believes that where there is a choice between menstrooms of different strength, the weaker should be chosen.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 947.

Blumenschein, Frederick J., discusses the economic advantage of making fluid extracts on a small scale in the laboratory of the retail druggist.—*Proc. Pennsylvania Pharm. Ass.*, 1909, pp. 187-189. See also *Am. Druggist*, N. Y., 1909, v. 55, p. 40.

Oldberg, Oscar, points out that while it is difficult for pharmacists to manufacture fluid extracts, the value of this class of preparations is grossly exaggerated and it is a serious mistake to encourage the use of fluid extracts for making other preparations—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 429.

Schimmel, M. S., deprecates the use of fluid extracts for making tinctures, elixirs and syrups, and asserts that preparations of this kind when made from fluid extracts are not uniformly efficient and will not even look alike.—*Pharm. Era*, 1909, v. 42, p. 496.

Flemer, Lewis, points out that the manufacture of fluid extracts is rarely undertaken by retail druggists, for economic reasons, and that the general appearance and extract content of the commercial products vary greatly, particularly when the preparations are diluted with vehicles. For these several reasons he suggests that fluid extracts be not used in the making of elixirs and other galenical preparations.—*Apothecary*, 1909, v. 21, June, p. 28. See also *Western Druggist*, Chicago, 1909, v. 31, pp. 338-339.

Bruder, O. E., in discussing the desirability of having National Formulary preparations made directly from the drug, points out that the fluid extracts directed are seldom if ever used or called for, except in the making of preparations, and the benefits derived if any do not warrant the purchasing or the making of these fluid extracts.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 230. See also *Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 963.

Kroeber, Ludwig, refutes the assertion that fluid extracts are prepared economically only in a large way, and reiterates the frequently made assertion that only by preparing galenical preparations himself can the pharmacist be assured of the nature and value of these preparations.—*Apoth. Ztg.*, Berl., 1909, v. 24, pp. 306-308.

Gane and Webster outline the methods recommended by them for the determination of alcohol in simple fluid extracts.—*Drug Topics*, New York, 1909, v. 24, p. 116. See also *Merck's Rep.*, 1909, v. 18, p. 196.

Wood, H. C., jr., reports a variation of 15 per cent of alcohol in 2 different makes of the same fluid extract.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 23.

Carter, Fred. L., quotes from a paper recently presented at the meeting of a state pharmaceutical association by the drug inspector of that state, who asserts that a fluid extract purchased by a reputable physician from a pharmaceutical house, whose reputation for pure products with the pharmacists of the state is above reproach, was

found upon analysis to have been made with wood alcohol instead of grain alcohol.—Proc. N. W. D. A., 1909, p. 43.

Firbas, Richard, discusses the utility of glycerin in fluid extracts and presents a number of observations made in connection with the fluid extracts of a variety of drugs.—Apoth. Ztg., Berl., 1909, v. 24, pp. 721-722. See also Pharm. Post, Wien, 1909, v. 42, pp. 765-767.

Gordin, H. M., suggests that the identification of fluid extracts could be made more complete by the determination of several constants, e. g., amount of water required to produce permanent turbidity, angle of refraction, specific gravity, alcohol strength and amount of solid residue.—Am. J. Pharm., Phila., 1909, v. 81, p. 437. See also Proc. Am. Pharm. Ass., 1909, v. 57, pp. 886-888.

Feldhaus, Julius, in a discussion on the valuation of fluid extracts, presents a table showing the specific gravity and extract content of a number of commercial fluid extracts.—Pharm. Ztg., Berl., 1909, v. 54, pp. 57-58.

Dieterich, Karl, points out that for the valuation of many of the fluid extracts the specific gravity, color and extract content is of value.—Pharm. Zentralh., 1909, v. 50, p. 541.

Dieterich and Mix in a discussion on the valuation of galenical preparations enumerate the requirements for some of the Ph. Germ., IV, and a large number of unofficial fluid extracts.—Pharm. Zentralh., 1909, v. 50, p. 729.

For references to individual fluid extracts see under respective drug headings.

#### FLUIDEXTRACTA N. F.

Posey, H. G., thinks that with but few exceptions the fluid extracts of the N. F. seem to be uniformly satisfactory, the general directions as to processes or methods of percolation, as well as menstruum to be used while a trifle long, are necessary owing to the explicit and exact methods which they describe.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 988.

Diehl, C. L., reports from the committee on N. F. the recommendation to delete all after "Fluid extracts" and before "General process."—*Ibid.*, p. 1071.

#### FLUIDEXTRACTUM APII GRAVEOLENTIS N. F.

Diehl, C. L., reports from the committee on N. F. recommending a change in title to "Fluidextractum Graveolentis."—*Ibid.*, p. 1071.

#### FLUIDEXTRACTUM ARNICÆ RADICIS N. F.

Kline, C. M., reports on 4 samples of arnica root which proved to be spurious or adulterated. A microscopical study of the histology



of one lot showed it to be an unmistakable substitution. Another sample proved to be an unknown root and could not be used. Still another sample was composed of two or three unknown roots.—Proc. N. W. D. A., 1909, p. 127.

An editorial asserts that the great scarcity of arnica root has led to adulteration and substitution, the contaminating part being largely of plants looking like arnica in the character of flower.—Pharm. J., Lond., 1909, v. 28 (82), p. 821.

The committee of reference in pharmacy recommends that a maximum ash limit in arnica rhizome be introduced (10 per cent).—Chem. & Drug., Lond., 1909, v. 74, p. 290.

#### FLUIDEXTRACTUM AROMATICUM N. F.

Caldwell, Paul, thinks that aromatic fluid extract can be dropped from the U. S. P. for the reason that the tincture is used instead.—Bull. Pharm., 1909, v. 23, p. 115.

#### FLUIDEXTRACTUM ASCLEPIADIS N. F.

Thompson, G. W., asserts that asclepias is indicated when there is a soreness behind the sternum and a general tightness of the thorax, intercostal pain in the sides due to an excessive dry cough, and asserts that he has never failed to cure a case of pleurisy and without complication with asclepias.—Eclectic Rev., 1909, v. 12, pp. 301–303.

Leming, W., points out that *Asclepias tuberosa* has been found useful in irritative and inflammatory states of the skin and lining membranes, associated with dryness or febrile action and lack of elimination, or with exudation, pain, and other evidences of a disturbed capillary circulation.—J. Therap. & Dietet., Boston, 1908–9, v. 3, p. 287.

Brubaker, M. M., asserts that *A. tuberosa* has a pronounced effect upon the sudoriparous glands, and as such is an eliminative agent of much value.—Eclectic M. J., Cincin., 1909, v. 69, pp. 87–89.

#### FLUIDEXTRACTUM ASPIDOSPERMATIS N. F.

Klipstein, E. C., discusses the influence of chemistry on the utilization of quebracho, more particularly in the tanning industry.—J. Soc. Chem. Ind., 1909, v. 28, pp. 408–411.

Le halle aux cuirs (1909, 138) gives a description of the factory at Puerto Sastre on the Paraguay River in the Chaco territory. From 3,000 to 4,000 tons of wood are worked out monthly, producing 800 to 900 tons solid extract.—Chem. Abstr. Am. Chem. Soc., 1909, v. 3, p. 2517.

Vanderkleed, C. E., reports 8 assays of quebracho; lowest 0.864, highest 2.250 per cent alkaloids; 7 above and 1 below standard.—Proc. Pennsylvania Pharm. Ass., 1909, p. 129.

## FLUIDEXTRACT OF BAPTISIA.

Pearlstien, M. B., asserts that *Baptisia tinctoria* given in small doses acts as a tonic, stimulant, and powerful alterative and antiseptic.—*Eclectic Rev.*, 1909, v. 12, pp. 359–361.

## FLUIDEXTRACT OF CACTUS GRANDIFLORUS.

An editorial asserts that *Cactus grandiflorus*, when properly prepared from the right material, is one of the most potent drugs for good that the physician can have in his emergency case of remedies.—*J. Therap. & Diet.*, 1909–10, v. 4, pp. 346–347.

## FLUIDEXTRACTUM CAMELLIÆ N. F.

Diehl, C. L., reports from the committee on N. F. recommending a change in the title to "Fluidextractum Theæ."—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1071.

## FLUIDEXTRACTUM CAULOPHYLLI N. F.

Jones, Eli G., asserts that caulophyllum is the remedy for girls at puberty, when their menses are delayed, develop headaches, wandering pains, chorea, and sometimes hysteria and epilepsy.—*J. Therap. & Diet.*, 1909–10, v. 4, p. 331.

## FLUIDEXTRACTUM COFFEEÆ VIRIDIS N. F.

Diehl, C. L., reports from the committee on N. F. the recommendation that fluid extract of green coffee be dropped.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1071.

Lendrich and Nottbohm present a study of the extraction of caffeine from coffee by means of various solvents, which reveals the fact that other things being equal, the yield of caffeine obtained on extracting with chloroform, benzene, or carbon tetrachloride varies with the amount of moisture in the sample. The results obtained are summarized.—*Ztschr. f. Unters. Nahr. u. Genussm.*, 1909, v. 17, pp. 241–265.

## FLUIDEXTRACTUM CORNUS N. F.

Holm, Theo., describes and illustrates the structural characteristics of *Cornus florida* L.; he also illustrates the structural characteristics of the vegetative organs.—*Merck's Rep.*, 1909, v. 18, pp. 318–321.

Henkel, Alice, presents an illustrated description of *C. florida* L., gives the common names, discusses its habitat and range, describes the tree and bark, discusses its collection, prices, and uses, and calls

attention to other species of cornus.—Bul. Bur. Plant Ind., U. S. Dept. Agric., 1909, No. 139, pp. 41–43.

Harris, H., asserts that in physiological action Jamaica dogwood resembles opium somewhat in the following particulars: It lessens sensation, induces sleep, promotes diaphoresis, and promotes muscular relaxation. It differs from opium by increasing the flow of saliva, dilating the pupils (secondarily), and by increasing arterial tension.—Eclectic Rev., 1909, v. 12, pp. 139–141.

#### FLUIDEXTRACTUM DULCAMARÆ N. F.

Phillimore, Fred G., enumerates dulcamara among the drugs that are useful in combating the vomiting of pregnancy.—J. Therap. & Diet., 1909–10, v. 4, p. 11.

Abbott, Solon, asserts that dulcamara is indicated in chronic rheumatism which gets worse from any little exposure to cold, or any change of temperature from warm to cold.—*Ibid.*, 1908–9, v. 3, p. 205.

#### FLUID EXTRACT OF ECHINACEA.

Kline, C. M., reports a drug supposed to be echinacea which was not echinacea (*Braumeria pallida*). It was probably a closely related species from the genus *Braumeria*. Roots were small, one-eighth to one-quarter inch diameter, very dark, fracture fibrous, taste weak, bitter.—Proc. N. W. D. A., 1909, p. 129.

Forbush, A. Waldo, asserts that *Echinacea angustifolia* is a rapid drug and is rapidly coming into prominence. This drug actively opposes septic tendencies, blood deterioration, stimulates the glandular organs, and actively influences secretion and excretion.—J. Therap. & Diet., 1909–10, v. 4, pp. 138–145.

An editorial (J. Am. M. Ass., 1909, v. 53, p. 1826) on worthless drugs, calls attention to the report of the council on pharmacy and chemistry (*ibid.*, p. 1836) on echinacea, a drug which is the chief constituent of a number of nostrums for which ridiculous claims are made, and the article shows, in a striking manner, on what feeble evidence the asserted virtues of the nostrums containing this drug are based.

Fyfe, John William, asserts that in echinacea we have a remedy of varied usefulness. It is especially useful in all conditions in which a tendency to sepsis is a prominent characteristic, regardless of the name or location of the disease.—Eclectic Rev., 1909, v. 12, pp. 49–50.

Edwards, D. H., thinks that there is no one drug in materia medica that deserves more praise as a life-saver and pain reliever than does *Echinacea angustifolium* when administered either locally or internally in properly selected cases.—Eclectic M. J., Cincin., 1909, v. 69, pp. 73–76.

Hinton, G. Allison, asserts that the treatment of syphilis with echinacea, phytolacca, iris, and other vegetable alteratives gives negative results in 95 per cent of the cases so treated.—*Nat. Eclect. Med. Ass. Quart.*, 1909-10, v. 1, p. 113.

#### FLUIDEXTRACTUM IRIDIS N. F.

Laws, O. S., has found *Iris versicolor* to be a specific in syphilis and he seldom uses anything else internally in that disease.—*Eclectic Rev.*, 1909, v. 12, p. 245.

Jones, Eli G., asserts that he has made some fine cures of fibroid tumor of the uterus, enlargement of the liver and spleen, also articular rheumatism with tincture of *Iris versicolor* (Blueflag) given in 25-drop doses three times a day.—*Ibid.*, p. 79.

#### FLUIDEXTRACTUM JUGLANDIS N. F.

Henkel, Alice, describes and illustrates *Juglans cinerea* L., enumerates its common names, discusses its habitat and range, gives a description of the tree and of the bark, and discusses its collection, prices, and uses.—*Bul. Bur. Plant Ind., U. S. Dept. Agric.*, 1909, No. 139, p. 15.

#### FLUIDEXTRACTUM SCUTELLARIÆ N. F.

Brower, J. J., describes *Scutellaria lateriflora* and discusses its medical properties. He asserts that scutellaria given to the young and to the old in the spring or fall, is one of the best things that a physician can give. The old can keep strong and firm, and able to do all their business the longer.—*Eclectic M. J., Cincin.*, 1909, v. 69, pp. 96-98.

#### FLUIDEXTRACTUM SPERCULÆ N. F.

Umney, J. C., in connection with the international standard for kola nuts asserts that the percentage of caffeine (1.5) stated as a minimum is really too high. His experience of kola is that the percentage of alkaloids varies between 1.1 and 1.3. The standard of the French Codex (1.25) is approximately correct.—*Chem. & Drug. Lond.*, 1909, v. 75, p. 580.

Mareeuw, W. P. H. van den Driessen, discusses the fat splitting constituents of cola, and reports a number of experiments to determine the nature of these enzymes and their activity under varying conditions.—*Pharm. Weekblad*, 1909, v. 46, pp. 346-356.

Dohme and Engelhardt think that an assay process should be adopted for kola nuts, and assert that a method like that used for guarana would be satisfactory.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 882.

Cæsar & Loretz (Geschäfts-Ber., 1909, pp. 93-94) outline the Keller-Siedler-Fromme method of assay for sterculia, and point out that the Ph. Helv. requires 1.5 per cent of alkaloids.

Vanderkeed, C. E., reports four assays of kola nut; lowest 1.062, highest 1.610 per cent alkaloids, all above standard.—Proc. Pennsylvania Pharm. Ass., 1909, p. 129.

Schamelhout, A., notes that the French fluid extract of cola should contain 1.25 per cent of caffeine; in Belgium the caffeine content is not indicated.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 12.

Diehl, C. L., reports from the committee on N. F. recommending a change in title to "Fluidextractum Kolæ;" also in menstruum I, change to 624 cc. alcohol and 312 cc. water; menstruum II, change to alcohol 2 vols., water 1 vol.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1071.

Perrot and Goris, in their paper on the sterilization of medicinal plants with reference to their therapeutic activity, present their researches on cola.—Bull. sc. pharmacol., Par., 1909, v. 16, pp. 384-387.

Bourdet, L., presents a note on the sugars of the fresh cola nut.—*Ibid.*, pp. 650-653.

Linke reviews the history of kola, the introduction of this drug, as a therapeutic agent, and its possible uses.—Therap. Neuh., 1909, v. 4, pp. 229-246.

#### FLUID EXTRACT OF THUJA.

Leming, W., asserts that *Thuja occidentalis* appears to have its main action upon the skin, genito-urinary organs, and anus. It stimulates urinary activity, causing copious and frequent flow of urine, and relieves and cures some cases of prostatic disease. Its action is typically stimulant and tonic.—J. Therap. & Diet., 1909-10, v. 4, pp. 58-59.

Hobby, A. W., thinks that careful restudy of thuja would be profitable, and that in its proper application will be found some surprises and much pleasure.—Eclectic M. J., Cincin., 1909, v. 69, pp. 554-557.

#### FLUIDEXTRACTUM VERBASCI N. F.

The Belgian inspectors of pharmacies report that verbascum flowers are frequently deteriorated, badly preserved or superannuated, brownish.—J. d. pharm. d'Anvers, 1909, v. 65, p. 549.

#### FENICULUM.

Hartwich and Jama present a pharmacognostic study of fennel obtained from various sources and illustrates the structural characteristics of the different varieties of this drug.—Ber. d. pharm. Gesellsch., Berl., 1909, v. 19, pp. 396-404.

Schamelhout, A., points out that in France *Fœniculum dulce* D. C. is official; in Belgium, *F. vulgare* Gaertn.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 14.

The Belgian inspectors of pharmacies state that fennel fruits are sometimes mixed with small stones, and the powder frequently gives such an amount of ash that it is difficult to admit that it is not a result of falsification. They find also the powder partly exhausted, very poor in oil, and giving a too weak ethereal extract.—J. d. pharm. d'Anvers, 1909, v. 65, p. 550.

Jennings and Rodwell present a note on samples of fennel fruit in which they call attention to the almost uniform inferiority of samples of this drug due either to deliberate adulteration or great lack of care in gathering. Three samples, out of seven reported on, contained a large proportion of wheat screenings; the remaining four samples were rejected on account of the presence of a considerable quantity of various other umbelliferous fruits, dirt, and what appeared to be unfertilized fennel fruits.—Pharm. J., Lond., 1909, v. 28 (82), p. 147.

#### FRANGULA.

Capps, Pratt, McCrae, and Halsey, recommend the deletion of frangula and fluidextractum frangulæ from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

Rusby, H. H., points out that two or three different forms of frangula appear to enter commerce, and there is need for some investigation as to their all being genuine frangula.—Midl. Drug., 1909, v. 43, p. 690. See also Pharm. Era, 1909, v. 42, p. 634.

Mosher, John, points out that frangula frequently has admixed with it or substituted for it the bark of *Rhamnus carniolica*. He reports on five samples examined: One consisted entirely of *R. carniolica*, one was frangula of U. S. P. quality, and three were admixtures of frangula and *R. carniolica*.—Am. J. Pharm., Phila., 1909, v. 81, p. 580.

Düsterbehn points out that the Ph. Fr. V requires that frangula be tested for oxyanthraquinone derivatives by treating the drug with benzol and shaking the resulting yellow solution with ammonia water.—Apoth. Ztg., Berl., 1909, v. 24, p. 228.

Rosenthaler and Meyer discuss the extraction of frangula so as to avoid the decomposition of the contained oxymethylantraquinone, and report a number of experiments with boiling alcohol and calcium carbonate, neither of which appear to have any appreciable influence in conserving the glucoside.—Arch. d. Pharm., 1909, v. 247, pp. 40-42.

#### GALLA.

Holmes, E. M., in discussing the materia medica of Perak, points out that the drug known as "Masika" (Mashikkay, Tamil) occurs as

dark colored or bluish-green galls, differing only from Aleppo galls in the larger number of prominences on the surface. They are probably derived from *Quercus lusitanica* Lam.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 758.

Kline, C. M., points out that while prime blue Aleppo nutgall costs about 15 cents a pound to import, yet the powdered drug is freely sold at from 14 to 15 cents.—Proc. N. W. D. A., 1909, p. 122.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 30) examined 11 samples of galls, with the oxalic acid equivalent of the tannins ranging from 85.6 to 96 per cent.

Caldwell, Paul, points out that there is an official tincture and an ointment of nutgall. Both owe their therapeutic value to the tannic acid content, so he suggests dropping the two preparations and instead use the glycerite and the ointment of tannic acid.—Bull. Pharm., 1909, v. 23, p. 116.

Cook, E. Fullerton, reports that tincture of nutgall can be made to advantage by maceration, and the U. S. P. percolation method should be changed. If the powder is slightly finer than a No. 40, the menstruum will not penetrate the packed drug and no percolate can be obtained. If it is moistened before packing, it forms a pasty mass which can not be properly packed. Maceration, however, seems to be satisfactory.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1002.

Mittelbach, William, asserts that the formula for nutgall ointment is a good one.—*Ibid.*, 1909, v. 57, p. 817.

#### GAMBIR.

Eitner, W. (Gerber, 35, 85-99) asserts that cutch and gambier are much used in tanning, especially for leather which is to be dyed. They come from the East Indies and both contain catechutannic acid which dissolves readily and tans rapidly.—Chem. Abstr. Am. Chem. Soc., 1909, v. 3, p. 3019.

Paessler, J. (Gerber-Ztg., 51, 272-274), reports on the character of a new grade of gambier extract manufactured in Sumatra.—*Ibid.*, v. 3, p. 2517.

Eitner, W. (Ledermarkt, Collegium, 1909, S. 287-239), points out that while theoretically there is no difference between catechu and gambier so far as their tanning value is concerned, yet practically the two articles give entirely different results.—Chem. Repert., Cöthen, 1909, v. 33, p. 636.

Beringer, George M., asserts that the official recognition of gambir has not met with favor. The peculiar earthy and bitter taste of gambir is objectionable, and our physicians continue to specify "catechu" and "tinct. catechu comp." A return to catechu and the elision of gambir will be welcomed.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 812.

The committee of reference in pharmacy asserts that the alcohol solubility of catechu should be raised from 70 to 80 per cent. The microscopical examination should be conducted on a sample mounted in water; this should show numerous acicular crystals but no starch grains. A test to distinguish catechu from cutch is given.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 291.

Scoville, W. L., reports 75.7 to 83.9 per cent catechu soluble in alcohol.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 732.

Patch, E. L., reports 3 per cent ash and 68 per cent soluble in alcohol.—*Ibid.*, p. 732.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 20), report two samples of pale catechu examined: Gallotannic acid equivalent, 26 and 28 per cent; ash, 8 and 9.7 per cent.

Schamelhout, A., notes that the tinctures of catechu, both in the Ph. Fr. V and Ph. Belg. III, are simple tinctures prepared with 60 per cent alcohol.—*Bull. Soc. roy. d. pharm.*, Brux., 1909, v. 53, p. 82.

Cook, E. Fullerton, reports that the formula for compound tincture of gambir is entirely satisfactory.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1002.

Capps, Pratt, McCrae, and Halsey recommend the deletion of gambir, *tinctura gambir composita* and *trochisci gambir* from the U. S. P.—*J. Am. M. Ass.*, 1909, v. 53, p. 792.

#### GELATINUM.

Street, J. P. (Connecticut Sta. Rpt., 1909-10, pt. 2, pp. 163-280) points out that gelatin is derived from collagen, the chief constituent of connective tissue. By proper treatment any form of connective tissue can be made to yield gelatin. Hide clippings yield glue, a crude form of gelatin, and much commercial gelatin is simply a purified glue, derived from such a source.—*Exp. Sta. Rec.*, 1910, v. 22, pp. 662-663.

Gane and Webster point out that few products are subject to much greater variety in quality than gelatin. They suggest that a useful test to determine the quality is to observe the firmness of the jelly when dissolved in water. The best grades will yield a good jelly when dissolved in 100 parts of water. One point, frequently overlooked by pharmacists, is that prolonged heating or heating to too high a temperature lessens the gelatinizing power of gelatin.—*Drug Topics*, New York, 1909, v. 24, p. 148.

Skraup and v. Biehler discuss the composition of gelatin.—*Monatsh. f. Chem.*, Wien, 1909, v. 30, pp. 467-479.

Woods, Charles D., states that gelatin (edible) contains not more than 2 per cent of ash and not less than 15 per cent of nitrogen.—*Rep. Maine Agric. Exper. Sta.* (1909), 1910, App. p. 109.



Poulenc Frères state, with reference to the Ph. Fr. V requirement that gelatin give an absolutely neutral solution, that the several brands of gelatin which they have examined all give a slightly acid reaction.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 409.

Merck, E. (Darmstadt), states that even the best and most costly kinds of gelatin give a slightly acid reaction to litmus.—*Ibid.*, p. 550.

Forrester, George P., discusses the preparation of sterilized gelatin solutions, and points out some of the precautions necessary to insure a really faultless product.—Am. Druggist, N. Y., 1909, v. 55, p. 209.

An abstract (Pharm. J. [russ], 1909, 200) outlines a method for the production of sterile solutions of gelatin.—Pharm. Ztg., Berl., 1909, v. 54, p. 551.

An unsigned review of an article (from Pharm. Ztg.) discusses the production of sterile solutions of gelatin for hypodermic injections by fractional sterilization, in sealed ampoules, for from 25 to 30 minutes on 3 successive days.—J. d. pharm., v. Elsass-Lothr., 1909, v. 35, pp. 177–178.

Menz, W., reports observations on some of the changes observed in gelatin solutions.—Ztschr. f. physik. Chem., 1909, v. 66.

Achard and Aynaud (Soc. biol., 65, No. 29; through Biochem. Centr., 8, 125) discuss the action of gelatin on the globulins.—Chem. Abstr. Chem. Soc., 1909, v. 3, p. 2829.

Wandel, Oskar, discusses the use of gelatin in the treatment of internal hæmorrhages, and asserts that the expectations of nearly 12 years ago have been fully complied with.—Therap. d. Gegenw., 1909, v. 50, pp. 265–268.

Witthauer (Münch. med. Wchnschr., 1908, No. 18) employed with success in 4 cases of intestinal hæmorrhage injections of gelatin and salt water.—Nouv. remèdes, 1909, v. 25, p. 406.

Gatti, G. (Gazz. d. osp. ed. clin. Milan, 1909, v. 30, no. 53), has found hæmorrhagic purpura rather frequent in the Udine asylum, and reports good results from subcutaneous and intravenous injections of gelatin.—J. Am. M. Ass., 1909, v. 53, p. 87.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 216–218) reviews some of the recent literature relating to the use of gelatin solutions in secondary post-operative hæmorrhage.

An editorial (J. Am. M. Ass., 1909, v. 52, p. 1842), discusses gelatin as a food in intestinal disease, and gives Herter's conclusion that it has a considerable degree of caloric value; as a partial substitute for carbohydrates, fats, and common proteids, it is valuable; it is incapable of undergoing putrefaction based on the presence of the tryptophan or tyrosin molecules; it is promptly absorbed; it is unable to support certain specific forms of bacterial life associated with certain intestinal disease.

For additional references on the use of gelatin see Index Medicus.

## GELSEMIUM.

Marris, G. W., points out that the Ph. Japon. III description of gelsemium is interesting, inasmuch as the roots are given the first place, as being of greater medicinal value than the rhizome. The stem should not be employed.—Chem. & Drug., Lond., 1909, v. 74, p. 380.

Sayre, L. E., in a further note on gelsemine hydrochloride and gelseminine, presents a preliminary report on the alkaloids obtained from 50 pounds of gelsemium which he proposes to study during the coming year.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 902-903.

Bernegau, L. Henry, suggests that a method of assay be added to the requirements for gelsemium. He has found Webster's tartaric acid method as modified by Sayre to give good results.—Am. J. Pharm., Phila., 1909, v. 81, p. 124.

Caldwell, Paul, thinks that fluid extract of gelsemium can be dropped, for the reason that the tincture is used instead.—Bull. Pharm., 1909, v. 23, p. 115.

Cook, E. Fullerton, reports that when tincture of gelsemium is first finished it is slightly cloudy.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1002.

Gregory, Wm. M., in discussing the uses of gelsemium, points out that the U. S. P. preparations are made from the dried root and never give the results that one can get from a green root tincture.—Eclectic Rev., 1909, v. 12, pp. 186-187.

An editorial (J. Therap. & Diet., 1909-10, v. 4, p. 217) asserts that gelsemium is one of the most important drugs that we use in our endeavors to cure disease. A preparation made from the green root provides the most active form of the drug and should always be insisted upon.

Fyfe, John William, states that gelsemium constitutes a superior medicament in a wide and varied range of pathological states: In fevers, neuralgia, diseases peculiar to women, as a parturifacient, and in gonorrhoea.—Eclectic M. J., Cincin., 1909, v. 69, pp. 616-618.

Billingsley, C. L. (Ellingwood's Therapeutist), reports a case in which epileptic convulsions were controlled in a very satisfactory manner while the patient was under 5-drop doses of gelsemium.—*Ibid.*, v. 69, p. 289.

Stephens, A. F., in discussing the treatment of pertussis, asserts that gelsemium will do the work when the patient is restless, nervous, has headache all over the head; when the eyes are bright, the conjunctiva red and suffused, and the spasm of the glottis severe.—Nat. Eclect. Med. Ass. Quart., 1909-10, v. 1, p. 125.

Chase, Augustus L., points out that the specific indications for gelsemium are "the flushed face, bright eyes, and contracted pupils."

Given a case with these conditions it is always curative, and almost a certain remedy for headaches accompanied with these symptoms.—J. Therap. & Dietet., Boston, 1908-9, v. 3, pp. 301-303.

#### GENTIANA.

Mitlacher, Wilhelm, reports on the adulteration of gentian root by root stalks of *Rumex alpinus* L. (*Radix Rhei monachorum*).—Ztschr. d. allg. österr. Apoth.-Ver., Wien, 1909, v. 47, pp. 457-458. See also Apoth. Ztg., Berl., 1909, v. 24, p. 838.

Peters, W., gives the moisture content of gentian as 8.15 to 8.18 per cent; the ash content of the air-dry drug as 3.50 to 4.41 per cent; the ash content of the dried drug as 3.81 to 4.81 per cent; and the color of the resulting ash as light gray.—Apoth. Ztg., Berl., 1909, v. 24, p. 538. See also Schweiz. Wchnschr. f. Chem. u. Pharm., Zurich, 1909, v. 47, 663.

Wiley, H. W., points out that powdered gentian has been found mixed with ground peanut shells.—Ann. Rep. U. S. Dept. Agric. for 1909, 1910, p. 430.

The examination of drug samples in 1907 show that of 76 samples of powdered gentian root examined, 20 were found adulterated or not up to standard.—Pharm. J., Lond., 1909, v. 28 (82), p. 182.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 30) found two samples of powdered gentian containing 15 and 20 per cent of "olive stone" tissue. The dry extractive matter varied from 34 to 46 per cent.

Rosenthaler and Meyer discuss the extraction of gentian so as to avoid the decomposition of the contained glucosides. They conclude that in the preparation of extract of gentian preliminary treatment with alcohol will to a considerable extent prevent decomposition.—Arch. d. Pharm., 1909, v. 247, pp. 30-36. See also Ztschr. d. allg. österr. Apoth.-Ver., Wien, 1909, v. 47, pp. 258, 265.

The committee of reference in pharmacy asserts that no change is necessary in the process for Ext. Gentianæ.—Chem. & Drug., Lond., 1909, v. 74, p. 292.

Hulick, Bloodfield, points out that while the change in menstruum used in the making of compound tincture of gentian has been of assistance in preventing precipitation, it does not accomplish all that was expected. He believes that the addition of 120 cc. of glycerin to each 1,000 cc. of the menstruum will yield a satisfactory preparation.—Am. J. Pharm., Phila., 1909, v. 81, p. 542. See also Proc. New Jersey Pharm. Ass., 1909, p. 87.

Cook, E. Fullerton, asserts that in compound tincture of gentian the drugs should not be ordered in the unground condition. There is no advantage in freshly grinding the gentian, and the simple tinctures of both bitter orange peel and cardamom are prepared

from "ground drugs." There is a slight precipitate in the finished tincture.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1002.

Bruder, O. E., thinks that the stronger compound infusion of gentian is no more an infusion than is the compound tincture of gentian in the Pharmacopœia, of which it is practically a duplicate.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 231.

Caldwell, Paul, thinks that fluid extract of gentian can be dropped for the reason that the tincture is used instead.—Bull. Pharm., 1909, v. 23, p. 115.

Heubner and Rieder discuss the action of bitter principles on the resorption of food and toxic principles.—Therap. Monatsh., Berl., 1909, v. 23, pp. 310-313.

#### GERANIUM.

Fussell, M. H., in recommending the deletion of geranium from the Pharmacopœia, asserts that geranium is a beautiful flower, but as a medicine a nonentity.—Tr. Am. M. Ass., Sec. Pharm. and Therap., 1909, p. 204.

Capps, Pratt, McCrae, and Halsey recommend the deletion of geranium and fluidextractum geranii from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

Leming, W., asserts that *Geranium maculatum* is indicated in sub-acute and chronic catarrhal states, and mucous fluxes with great relaxation or tendency to ulceration.—J. Therap. & Diet., 1909-10, v. 4, pp. 93, 94.

#### GLANDULÆ SUPRARENALES SICCÆ.

Comesatti, G. (Gazz. d. osp. ed. clin. Milan, 1908, v. 29, No. 145), presents a chemical research on suprarenal extract.—J. Am. M. Ass., 1909, v. 52, p. 339.

Sajous, Charles E. de M., in a discussion of the autoprotective mechanism of the human body, deals largely with the physiology and pharmacology of the adrenals. He gives an extensive bibliography.—New York M. J., 1909, v. 89, pp. 361-368, 431-437.

Hunt, Reid, speaking of the great variability of such products as the preparations of the suprarenal glands, states that the relative value of natural and synthetic products can be determined only by physiologic methods.—J. Am. M. Ass., 1909, v. 52, p. 794.

An editorial (Med. Rec., N. Y., 1909, v. 76, p. 1080) calls attention to the antagonistic action of suprarenal extract and strychnine, with special reference to the work of Falta and Jvcovic.—Berl. klin. Wchnschr., Oct. 25, 1909.

Rodman, J., inquires as to cumulative action of suprarenal extract.—J. Am. M. Ass., 1909, v. 53, p. 396. See also p. 576.

See also under Epinephrine.

## GLANDULÆ THYROIDÆE SICCÆ.

Pick and Pineles report experiments to determine the physiologically active substances present in thyroid.—*Ztschr. f. exper. Path. u. Therap.*, 1909-10, v. 7, pp. 518-531.

Hunt, Reid, states that, because of their greater facility of application and by a larger class of workers, it is desirable that chemic should replace biologic methods of standardization. This may soon be possible in the case of thyroids, through their iodine content; yet thyroid can be tested physiologically in amounts so small as would not give an iodine test by any known chemic method.—*J. Am. M. Ass.*, 1909, v. 52, p. 794.

Hunt and Seidell, in a contribution entitled "Studies on the Thyroid," discuss the relation of iodine to the physiological activity of thyroid preparations.—*Bull. Hyg. Lab., U. S. P. H. & M.-H. S.*, 1909, No. 47, pp. 112.

An editorial (*J. Am. M. Ass.*, 1909, v. 52, p. 1260) discusses the relation of iodine to the activity of thyroid preparations, calling attention to the work of Kocher, Baumann, and Roos and particularly of Hunt and Seidell (*Hyg. Lab. Bull. No. 47*).

Strouse and Voegtlin, in studies concerning the iodine containing principle of the thyroid gland, report observations on the pharmacological action and therapeutic behavior of diiodotyrosin.—*J. Pharm. & Exper. Therap.*, 1909-10, v. 1, pp. 123-133.

Hunt, Reid, thinks that the value of thyroids depends upon the content of properly combined iodine, and that qualitative and quantitative tests for iodine in thyroids might be included in the *Pharmacopœia*.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 810.

Riggs, Louis W., reports observations on the determination of iodine in protein combinations.—*J. Am. Chem. Soc.*, 1909, v. 31, pp. 710-717. See also *Chem. News, Lond.*, 1909, v. 100, p. 91.

Seidell, Atherton, discusses the determination of iodine in thyroid, and comments on the paper by Riggs, whose observations, Seidell believes, resulted from a failure to remove completely the residual iodine from the acid aqueous layer before applying his reduction process.—*J. Am. Chem. Soc.*, 1909, v. 31, pp. 1326-1329.

Léopold-Lévi and Rothschild discussed before the Therapeutic Society small doses in thyroid therapy and enumerated the conditions in which it is necessary to employ small doses (0.025 gm.).—*J. d. pharm. et d. chim., Par.*, 1909, v. 79, p. 80.

The editor of the "Therapeutics" column (*J. Am. M. Ass.*, 1909, v. 53, p. 1031), commends 3-grain doses of thyroid in chlorotic girls suffering from amenorrhœa. •

Brown, Alexander G., discusses the use of thyroid extract in the therapeutic management of arteriosclerosis.—*Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, p. 80.

Alderman, Theodore Davis, thinks that thyroid extract seems to be of value in melancholia.—*Eclectic Rev.*, 1909, v. 12, p. 263.

Orr, John, presents observations on the use of thyroid extract, and expresses the belief that this is a remedy full of therapeutic interest, the use of which is occasionally accompanied by strikingly successful results.—*Folia Therap.*, Lond., 1909, v. 3, pp. 77-79.

An unsigned article calls attention to the use of thyroids by quacks and the possible harm resulting from the continued use of this drug.—*Drug. Circ.*, N. Y., 1909, v. 53, p. 18.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 219-220) reviews some of the recent literature relating to the use of thyroid, and points out that connection between thyroid gland and tuberculosis has been more or less definitely stated to exist by various authorities and that conclusions have been drawn from this as to the treatment of tuberculosis.

For additional references, see *Index Medicus* and *J. Am. M. Ass.*

#### GLYCERINUM.

Joslin, O. T., discusses the comparative cost of glycerin produced by the Twitchell process and that recovered from waste soap lye, and points out that the former process because of its economy and general adaptability is destined to replace the older methods.—*J. Ind. Eng. Chem.*, 1909, v. 1, pp. 654-656.

An editorial (*Pharm. J.*, Lond., 1909, v. 29 (83), p. 471) comments on the production and use of glycerin, and estimates that the total output of crude glycerin is about 75,000 tons annually. The United States takes about 20 per cent of this quantity. The greater part of the glycerin products is used in the production of nitro-explosives.

An editorial (*Brit. & Col. Drug.*, 1909, v. 55, pp. 533-534) discusses the position of glycerin, and points out that an expansion of demand for various industrial purposes in conjunction with restricted supplies of crude has established glycerin on a very high plane of value.

The committee on uniformity of technical analysis of the American Chemical Society outlines suggestions regarding the analysis of various forms of glycerin, regarding which criticism is invited.—*J. Ind. Eng. Chem.*, 1909, v. 1, p. 268.

Umney, J. C., in connection with the proposed international standard for glycerin points out that a very indefinite test has been introduced in the following words: "It may contain infinitesimal traces of arsenic, but sulphuretted hydrogen should not color it yellow." He repeats that it would be better to make no reference to the matter at all than to give such indefinite limitations.—*Chem. & Drug.*, 1909, v. 75, p. 581.

Pearson, W. A., reports that glycerin seems to be difficult to obtain without traces of foreign odor and butyric acid.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 180.

Rosengarten, George D., points out the difficulties in the manufacture of glycerin free from traces of butyric acid.—*Merck's Rep.*, 1909, v. 18, p. 336. See also *Am. Druggist*, N. Y., 1909, v. 55, p. 366.

An editorial points out that the purest glycerin on the market does not conform to all the tests given in the Ph. Fr. V and, while it may be possible to manufacture a product of the required quality, the cost would be so great as to make it practically prohibitive so far as the drug trade is concerned.—*National Druggist*, 1909, p. 306.

Lemoine, P. (*Bull. Soc. pharm. d. Bordeaux*, 1909, S. 173), comments on the unsatisfactory nature of the directions given in the Ph. Fr. V for testing glycerin by means of silver nitrate and sodium hydroxide solution, as variations in the application of the test lead to widely different results.—*Chem. Report.*, Cöthen, 1909, v. 33, p. 398.

Schamelhout, A., states that in France officinal glycerin has a density of 1.264, with 1.256 as a limit of tolerance; in Belgium it is 1.24.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 15.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 32) report all consignments of glycerin examined up to standard. Arsenic tests showed absence of more than 1 part per 1,000,000.

Southall Bros. & Barclay (*Rep.* 1908-9, Birmingham, 1910, p. 29) report that one sample only of glycerin proved to contain any appreciable amount of arsenic, this being half-white quality and containing 10 parts per 1,000,000.

The examination of drug samples in 1907 shows that of 128 samples of glycerin examined 3 were found adulterated or not up to standard.—*Pharm. J., Lond.*, 1909, v. 28 (82), p. 182.

Scovell, M. A., reports glycerin containing butyric acid, acrolein, sugars, and heavy metals.—*Rep. Kentucky Agric. Exper. Sta.* (1908-9), 1909, p. 7.

Knight, Henry G., reports one sample of glycerin having a percentage of 62.4 and a specific gravity of 1.16388.—*Rep. Dairy, Food & Oil Com., Wyoming*, 1909, p. 78.

Hill, Edward C., reports one sample of glycerin examined, which was found to be adulterated; the specific gravity was 1.1888.—*Bull. Colorado Bd. Health*, 1909, v. 9, No. 4, p. 9.

The Belgian inspectors of pharmacies report finding glycerin contaminated by traces of fatty acids and aldehyde products.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 587. See also *Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 258.

A committee of the *Syndicat général de la Droguerie française* asserts that all commercial glycerins reduce silver nitrate in the presence of soda, and asks that this be tolerated.—*Bull. sc. pharmacol., Par.*, 1909, v. 16, p. 288.

Poulenc Frères state that no commercial glycerin responds entirely to the requirements of the Ph. Fr. V.—*Ibid.*, p. 409.

A committee of Section III, Second International Congress for the Suppression of Adulterations (Paris, 1909), recommends that glycerin be sold with the designation of its specific gravity and not alone of the aerometric degree (which varies from one country to another). In the absence of this designation glycerin should have a specific gravity of at least 1.260 at 15°. It contains also about 2 per cent of water and corresponds to glycerin at 30° (French).—*Ibid.*, p. 425.

Schamelhout, A., commenting on the description of glycerin proposed by the third section of the Second International Congress for the Repression of Adulteration, notes that there is a contradiction in the definition of the characters; in effect, while being free from foreign organic matters, glycerin may be nearly inodorous and still contain traces of reduction products. Another reaction, besides that with hydrogen sulphide, should be indicated for the detection of arsenic.—*Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 183.*

Denigès, Georges, describes a new, very sensitive color reaction for the identification of glycerin. The glycerin is oxidized by heating with bromine water to dioxycetone, which gives very characteristic reactions with various substances.—*Compt. rend. Acad. d. sc., Par., 1909, v. 148, pp. 570–572.* See also *J. d. pharm. d'Anvers, 1909, v. 65, p. 296.*

Schmidt and Jones report a number of observations on the use of glycerol as a solvent.—*Am. Chem. J., 1909, v. 42, p. 57.*

Firbas, Richard, discusses the value of the glycerin content of fluid extracts and asserts that the irrational production of these preparations has been the direct cause for their lack of popularity. He presents several tables showing comparative results obtained in the making of several fluid extracts with and without glycerin.—*Ztschr. d. allg. österr. Apoth.-Ver., Wien, 1909, v. 47, pp. 445–447.*

Naylor and Chappel discuss the estimation of extractive and glycerin in spirituous galenicals, and report a number of analyses made.—*Pharm. J., Lond., 1909, v. 29 (83), pp. 139–141.*

Vetlesen, H. J. (*Norsk. Mag. Lægevid, 1909, v. 70, No. 10*), reports 2 cases of pernicious anæmia treated with glycerin.—*J. Am. M. Ass., 1909, v. 53, p. 2045.*

### GLYCERITA.

#### GLYCERITUM ACIDI TANNICI.

Schamelhout, A., notes that glycerite of tannin in Belgium is 15 per cent; in France it contains 20:120 gm.—*Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 15.*



## GLYCERITUM AMYLI.

Schamelhout, A., points out that the French formula for glycerite of starch is: Cereal starch (*Amidon de blé*) 10, distilled water 10, glycerin (D. 1.264) 130; in Belgium—Wheat starch 10, distilled water 15, glycerin (D. 1.24) 90. In Belgium one must operate on a water bath, which is not at all necessary; in France, over the naked fire.—*Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 15.*

## GLYCERITUM BISMUTHI N. F.

Dunn, John A., asserts that in making glycerite of bismuth N. F., in order to insure complete precipitation it is necessary to dilute the magma with 5,000 cc. of distilled water instead of 1,000.—*Proc. Am. Pharm. Ass., 1909, v. 57, p. 954.*

Diehl, C. L., reports from the committee on N. F. recommending the dilution of the magma, produced according to directions, with 5,000 cc. instead of 1,000 cc. of distilled water to insure complete precipitation of bismuth, as suggested by E. H. Squibb. No other modification of the working direction is necessary except to insert the word "previously" after the word "acid" in the first line.—*Ibid., v. 57, p. 1072.*

## GLYCERITUM BOROGLYCERINI.

Dunn, John A., asserts that the U. S. P. formula for glycerite of boroglycerin gives a preparation that is apt to discolor during the process of making it. By increasing the boric acid to 350 gm. he gets a whiter preparation.—*Ibid., p. 948.*

## GLYCERITUM FERRI, QUININÆ ET STRYCHNINÆ PHOSPHATUM.

Caldwell, Paul, points out that the purpose of glycerite of iron, quinine, and strychnine is more praiseworthy than the thing itself. The product gelatinizes readily, due, no doubt, to the iron salt. This can be overcome by making the preparation one-half its present strength, and by using equal parts of alcohol and glycerin. Thus in making the sirup we would have in the finished product one-fourth glycerin, one-fourth alcohol, and one-half sirup.—*Bull. Pharm., 1909, v. 23, p. 116.*

Fussell, M. H., thinks that glycerite of the phosphates of iron, quinine, and strychnine should be relegated to the National Formulary.—*Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 205.*

## GLYCERITUM GUAIACI N. F.

Diehl, C. Lewis, thinks that the proportions in the formula for glycerite of guaiac N. F. should be corrected in accordance with the

original formula of S. L. Hilton, who recommended its addition in 1893 (see Proceedings, 1893, 43).—*Ibid.*, p. 1072.

#### GLYCERITUM PEPSINI N. F.

Cook, E. Fullerton, thinks the addition of 4 fluid ounces of imported stronger orange flower water to each gallon of glycerite of pepsin N. F. greatly improves the flavor and destroys the unpleasant taste of the pepsin.—*Ibid.*, p. 961.

#### GLYCYRRHIZA.

Ozmun, Edward H., consul general at Constantinople, presents a report on the Turkish licorice industry, and describes the harvesting and handling of this article in the Levant. He points out that the licorice plant has been cultivated, according to precedence of date, in Spain, Italy, Greece, the Ottoman Empire, Russia, China, Turkestan, and Persia, and presents a table showing the yearly production of dry licorice in these several countries.—Oil, Paint & Drug Reporter, New York, 1909, v. 75, Feb. 8, p. 28H.

Schneider, Albert, points out that it would appear that in certain parts of California the conditions for growing licorice are ideal. It thrives best in fine soil in bottom lands, where there is abundant moisture during the growing season, but where the ground bakes hard during the late summer months, which is favorable to the forming of the sweet constituents.—Pacific Pharmacist, 1909-10, v. 3, p. 193.

Holmes, E. M., in discussing the materia medica of Perak, points out that licorice root is used in the form of a decoction for coughs, colds, etc. The root has the reddish tint and scaly surface of Eastern liquorice root, and is probably derived from *Glycyrrhiza glandulifera* Waldest. & Kit.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 757.

An abstract from a consular report by E. L. Harris, of Smyrna, discusses the marketing of licorice root and the methods of preparation.—Meyer Bros. Drug., 1909, v. 30, p. 144.

"1" discusses the increased use of licorice root by manufacturers of extract in the Caucasus and the difficulty of securing a sufficient supply of the crude drug. He points out the possibility of developing a trade in licorice root with central Asia.—Pharm. Ztg., Berl., 1909, v. 54, p. 859.

Rusby, H. H., asserts that he has seen ground licorice imported which apparently consisted of the peelings of Russian licorice. There should certainly be descriptions of the powders of drugs subject to such contingencies.—Pharm. Era, 1909, v. 42, p. 634. See also Midl. Drug., 1909, v. 43, p. 690.

Peters, W., gives the moisture content of glycyrrhiza as 8.19 per cent; the ash content of the air-dry drug as 5.33 per cent; the ash content of the dried drug as 5.81 per cent, and the color of the resulting ash as bluish gray.—*Apoth. Ztg.*, Berl., 1909, v. 24, p. 538. See also *Schweiz. Wchnschr. f. Chem. u. Pharm.*, Zürich, 1909, v. 47, p. 663.

Tschirch and Gauchmann report the results of a comprehensive study on the chemistry of glycyrrhizic acid.—*Ztschr. d. allg. österr. Apoth.-Ver.*, Wien, 1909, v. 47, pp. 361–362, 369–370, 377–378.

The same authors also report observations on the occurrence of glycyrrhizinic acid in other plants.—*ibid.*, 385–386, 393–394.

Dohme and Engelhardt report one shipment of licorice containing an excessive amount of ash.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 716.

The examination of drug samples in 1907 showed that of 198 samples of compound licorice powder examined, 2 were found adulterated or not up to standard.—*Pharm. J.*, Lond., 1909, v. 28 (82), p. 182. See also *Chem. & Drug.*, Lond., 1909, v. 75, pp. 17–18.

Schamelhout, A., points out that the extract of glycyrrhiza is moist in France and dry in Belgium.—*Bull. Soc. roy. d. pharm.*, Brux., 1909, v. 53, p. 14.

Umney, J. C., in connection with the proposed international standard for liquorice juice, asserts that in the report circulated the figures are not included for the percentage of maltose, glucose, and gum in liquorice juice, but the requirement of at least 6 per cent of glycyrrhizin is mentioned. In his opinion this figure is much too low, the liquorice juice of commerce containing from 10 to 15 per cent upward, and certainly the bottom figure is one that might have been utilized as a minimum.—*Chem. & Drug.*, 1909, v. 75, p. 580.

Lythgoe, Hermann C., reports that 6 samples of extract of licorice were collected during the year, 2 of which contained about 25 per cent corn starch.—*Rep. Massachusetts Bd. Health* (1909), 1910, p. 475.

Dunn, John A., thinks the process for fluid extract of licorice root in the U. S. P., 1890, was a good one. The process of the U. S. P. VIII is cumbersome and somewhat troublesome, and does not yield a product which has any advantage over the 1890 preparation.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 947.

Beringer and Beringer offer a formula for sirup of glycyrrhiza which they consider convenient and satisfactory.—*Am. J. Pharm.*, Phila., 1909, v. 81, p. 320. See also *Proc. New Jersey Pharm. Ass.*, 1909, p. 96.

Diehl, C. L., reports from the committee on N. F. recommending the addition of 5 cc. of chloroform to the present formula for sirup of glycyrrhiza. He points out that if the pure extract of licorice

U. S. P. is used (as required) this makes an elegant sirup, far superior to formulas recommended in the "Bulletin."—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1087.

#### GLYCYRRHIZINUM AMMONIATUM.

The White Cross Congress held in Paris in October, 1909, suggests that the pure glycyrrhizin should equal at least 70 per cent in ammoniacal glycyrrhizin.—Chem. & Drug., Lond., 1909, v. 75, p. 682.

Tschirch and Gauchmann report some further studies on the chemical constitution of glycyrrhizin.—Arch. d. Pharm., 1909, v. 247, pp. 121-123. See also under Glycyrrhiza.

#### GOSSYPII CORTEX.

Henkel, Alice, presents an illustrated description of *Gossypium hirsutum* L. ("*Gossypium herbaceum* L."), discusses the species from which the drug is derived, describes the plant and bark and discusses its collection, prices, and uses.—Bull. Bur. Plant Ind., U. S. Dept. Agric., 1909, No. 139, pp. 40-41.

Rusby, H. H., asserts that there is great need of a thorough study of this drug, starting with the collection of authentic material. The nomenclature also needs revision.—Pharm. Era, 1909, v. 42, p. 634.

#### GOSSYPIUM PURIFICATUM.

Henkel, Alice, points out that since its introduction into the Pharmacopœia in 1850 the botanical name of the cotton plant has been given as *Gossypium herbaceum*, and for many years it has been so called in botanical and other works. Recent investigations have shown, however, that *G. herbaceum* is not an American cotton at all, but is the name of an old world species known as Levant cotton, cultivated in India and also in southern Europe. The appellation *herbaceum* to the American plant is evidently the result of wrong identification by early American authors, and the assumption that it originated from European seed. (Dewey, L. H., Science, n. s., vol. 19, p. 337, 1904.) In view of the fact that cotton root bark, purified cotton, and cotton seed oil are not likely to be obtained in this country from any other than the American cotton, it would seem desirable to change the wording of the Pharmacopœia so as to read "*Gossypium hirsutum* Linné or other cultivated species of *Gossypium*."—Proc. Am. Pharm. Ass., 1909, v. 57, p. 767.

Thomann, J., discusses the requirements for purified cotton and points out that the fat content (0.3 per cent) permitted by the Ph. Helv. IV is not compatible with the requirements that the cotton sink immediately in water. He points out that the Ph. Austr. VIII

requirement, that purified cotton should not contain over 0.15 per cent of fat, is more correct.—Schweiz. Wchnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, p. 323.

Posey, H. G., thinks that styptic cotton N. F. is of very little use, and should be dropped.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 988.

Diehl, C. L., reports from the committee on N. F. the recommendation to increase, in the second line of the directions for making styptic cotton N. F., the quantity of water to 14 parts, and in the fifth to change the last word from "twice" to "three times."—*Ibid.*, v. 57, p. 1072.

A number of references on the cultivation of cotton will be found in J. d'Agric. Trop., Par., 1909, v. 9; Bull. Imp. Inst., 1909, v. 7; and Exp. Sta. Rec., 1909, v. 21.

#### GRANATUM.

Rusby, H. H., asserts that there is such a difference in activity of root and stem bark that it is not proper to specify both. He believes that only the root bark should be admitted.—Midl. Drug., 1909, v. 43, p. 690. See also Pharm. Era, 1909, v. 42, p. 634.

Schamelhout, A., notes that in the Ph. Fr. V the bark of the root of granatum is officinal; according to the text, however, one may employ the bark of the stem. It should contain a minimum of 0.25 per cent of alkaloids. In the Ph. Belg. III the bark of the root and that of the stem are officinal under the same title, alkaloidal content not required.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 55.

Peters, W., gives the moisture content of pomegranate as 6.51 per cent; the ash content of the air-dry drug as being 12.45 per cent; the ash content of the dried drug as 13.32 per cent; and the color of the resulting ash as light gray.—Apoth. Ztg., Berl., 1909, v. 24, p. 537. See also Schweiz. Wchnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, p. 663.

Hirano, G., reports an investigation of the alkaloidal content of the root, stem, and branch barks of Japanese pomegranate trees. He found the respective barks to average 0.32, 0.12, and 0.10 per cent of alkaloid.—J. Pharm. Soc. Japan, 1909, p. 473.

Caesar & Loretz (Geschäfts-Ber., 1909, pp. 80–81) outline the Keller-Fromme method for the alkaloidal assay of pomegranate root bark.

Caldwell, Paul, thinks that fluid extract of pomegranate should be dropped as the alkaloid is used instead.—Bull. Pharm., 1909, v. 23, p. 115.

#### GRINDELIA.

Perrédès, P. E. F., reports on the experimental cultivation of *Grindelia camporum* in Jersey and presents a number of figures,

illustrating the various stages in the growth of the plant.—Pharm. J., Lond., 1909, v. 29 (83), pp. 596, 604–608.

Rusby, H. H., points out that much work has been done on one or two species of *grindelia*, but there is the best ground for believing that many other species are equally good, and the pharmacopœial definition should be enlarged accordingly. He thinks it probable that all species are equally good and that the leaves and tops only should be used.—Midl. Drug., 1909, v. 43, p. 690. See also Pharm. Era, 1909, v. 42, p. 634.

Beringer, George M., states that the official description of *grindelia* takes no notice of the stems and branches, which, from the character of the plant, form a large portion of the “flowering top” and the commercial drug.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 812.

Düsterbehn notes that the Ph. Fr. V directs that fluid extract of *grindelia* be made with 75 per cent alcohol.—Apoth. Ztg., Berl., 1909, v. 24, p. 239.

Hartz, J. D. Aug., presents a formula for soluble fluid extract of *grindelia* made by the addition of monohydrated sodium carbonate.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 968.

Beringer, George M., presents a formula for fluidglycerate of *grindelia* in which potassium hydroxide is used to facilitate extraction.—Am. J. Pharm., Phila., 1909, v. 81, p. 480. See also Proc. Am. Pharm. Ass., 1909, v. 57, p. 1013.

Forbush, A. Waldo, asserts that the physiological influence of *Grindelia robusta* is exhibited on the heart; at first by a quickened pulse, subsequently by retarding it. It first elevates the blood pressure, but subsequently its action is retarding.—J. Therap. & Dietet., Boston, 1908–9, v. 3, pp. 132–135.

An editorial quotes the following specific indications for *G. robusta*: Asthmatic breathing, with soreness and raw feeling in the chest, cough, harsh and dry; breathing labored, with a dusky coloration of the face in plethoric individuals. Locally, old atonic ulcers; full tissues; rhus poisoning.—*Ibid.*, 1909–10, v. 4, p. 253.

Webb, Frank, asserts that *G. robusta* is indicated in cases that seem to be purely asthma of the large bronchi, hoarse, dry cough, secretions sticky and finally raised in large lumps.—*Ibid.*, v. 4, p. 109.

#### GUAIACOL.

Valeri, G. B., reports pharmacological researches on the action of guaiacol derivatives.—Arch. internat. d. pharmacod. et d. therap., 1909, v. 19, pp. 97–117.

Hecht (Deutsch. Med. Ztg.) discusses the use of guaiacol as an anæsthetic and antiphlogistic, and presents a number of type prescriptions for combinations of guaiacol, with other substances, to be applied externally.—D.-A. Apoth. Ztg., N. Y., 1909–10, v. 30, p. 142.

Seifert, Otto, points out that the external application of guaiacol is frequently followed by a sense of weakness, buzzing in the ears, and stupor. The use of 3 gm. has produced collapse.—*Apoth. Ztg.*, Berl., 1909, v. 24, p. 46.

An abstract (*Rev. Trimestr. Suisse d'Odont.*) points out that the best method of removing the disagreeable odor of guaiacol from the hands is to wash them in a solution of linseed meal.—*Dental Cosmos*, Philadelphia, 1909, v. 51, p. 269.

#### GUAIACUM.

Rusby, H. H., asserts that guaiacum is in great need of study and more perfect description. This can never be done until some properly qualified person goes to its home and collects authentic material.—*Pharm. Era*, 1909, v. 42, p. 634. See also *Midl. Drug.*, 1909, v. 43, p. 690.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 32) examined one consignment of guaiacum resin: Acid value (indirect), 66.2; ash, 2.2 per cent; inert matter, 12.6 per cent.

Southall Bros. & Barclay (*Rep.* 1908-9, Birmingham, 1910, p. 12) report that the single sample of guaiacum resin examined was soluble to the extent of 82.88 per cent in 90 per cent alcohol, and was free from colophony according to the U. S. P. test.

Cook, E. Fullerton, thinks that the formula for tincture of guaiac is entirely satisfactory.

When first finished ammoniated tincture of guaiac is clear and apparently satisfactory, but upon standing for 8 months it develops masses of precipitate which about one-fourth fill the bottle.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1002.

Diehl, C. L., reports from the committee on N. F. recommending the deletion of the note in connection with mixture of guaiac N. F. A change in formula and directions is presented.—*Ibid.*, v. 57, p. 1078.

Spencer, J. R., states that guaiacum has been successfully used in the treatment of amenorrhœa, dysmenorrhœa, and other uterine troubles, and in dysentery. He finds it specific in pharyngitis, tonsillitis, laryngitis, and rheumatism in which there is enlargement of the tonsils or some form of throat affection.—*Eclectic M. J.*, Cin., 1909, v. 69, pp. 587-588.

#### GUARANA.

Fussell, M. H., in recommending its deletion from the Pharmacopœia, asserts that guarana is certainly much less efficacious than the alkaloid caffeine.—*Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, p. 204.

Lyons, A. B., discusses the official assay of guarana and asserts that the assay process given was devised for the assay of cola, which contains an alkaloid besides caffeine and therefore requires the use of acid and alkali as prescribed.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 806.

Dohme and Engelhardt think the assay method for guarana and the fluid extract works well, the resulting caffeine being usually perfectly white.—*Ibid.*, v. 57, p. 882.

Vanderkleed, C. C., reports 5 assays of guarana; lowest 4.020, highest 4.520 per cent alkaloids; all above standard.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 129.

Caesar & Loretz (*Geschäfts-Ber.*, 1909, p. 30) point out that the limited supply of guarana that has been coming into the German market would indicate that there has been a decided restriction in the production of this drug in Brazil.

Caldwell, Paul, asserts that fluid extract of guarana should be dropped, as the alkaloid caffeine is used instead.—*Bull. Pharm.*, 1909, v. 23, p. 115.

Wilks, Samuel, expresses the belief that guarana will do more than caffeine, and asserts that he has seen cases where caffeine had been given and had signally failed, and afterwards guarana was given with almost immediate result.—*Folia Therap.*, Lond., 1909, v. 3, p. 102.

#### **HAMAMELIDIS CORTEX.**

Henkel, Alice, presents a description with an illustration of *Hamamelis virginiana* L., gives the pharmacopœial name and the common names, discusses its habitat and range, describes the shrub and the bark, and discusses the collection, prices, and uses.—*Bull. Bur. Plant Ind.*, U. S. Dept. Agric., 1909, No. 139, pp. 27–28.

Rusby, H. H., thinks that the limit of the admissible size of the twigs should be stated.—*Midl. Drug.*, 1909, v. 43, p. 690. See also *Pharm. Era*, 1909, v. 42, p. 634.

#### **AQUA HAMAMELIDIS.**

Mittelbach, William, inquires: Why publish the formula for making aqua hamamelidis when not one in a thousand pharmacists ever makes the preparation.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 61.

Gane and Webster assert that hamamelis water is a remarkable tribute to the value of advertising and to the gullibility of people in general, not excepting physicians and pharmacists. Its medicinal virtues are simply those of a diluted alcohol.—*Drug Topics*, New York, 1909, v. 24, p. 341.

Dunlap, Renick W., reports 9 samples of witch-hazel extract examined; 5 not passed.—*Rep. Ohio Dairy & Food Com.*, 1909, p. 60.



Diekman, George C., reports 5 samples of witch-hazel, examined by the middle branch, 1 of which was below standard, containing methyl alcohol.—Rep. New York Bd. Pharm. (1909), 1910, p. 13.

Wetterstroem, Theo. D., reports a sample of witch-hazel (water) purchased from a Chicago mail order house, containing 13.9 per cent absolute ethyl alcohol by volume, and no formaldehyde.—Proc. Ohio Pharm. Ass., 1909, p. 63.

Hill, Edward C., reports one sample of witch-hazel which was found to be adulterated because of wood alcohol, and misbranded.—Bull. Colorado Bd. Health, 1909, v. 9, No. 4, p. 13.

Scovell, M. A., reports a sample of witch-hazel short in alcohol and containing formaldehyde, and another sample containing methyl alcohol.—Rep. Kentucky Agric. Exper. Sta. (1908-9), 1910, p. 6.

Jones, Eli G., asserts that hamamelis is the "aconite of the veins" and should be given in alternation with pulsatilla.—J. Therap. & Diet., 1909-10, v. 4, p. 293.

Harbert, J. P., finds hamamelis useful in all traumatic inflammations of the eye or its appendages. A drachm of this drug to 1 ounce of saturated boric acid solution makes an ideal eye lotion.—Eclectic M. J., Cincin., 1909, v. 69, p. 528.

#### **HAMAMELIDIS FOLIA.**

Düsterbehn points out that the Ph. Fr. V directs that fluid extract of hamamelidis be made with 45 per cent alcohol.—Apoth. Ztg., Berl., 1909, v. 24, p. 239.

Schamelhout, A., states that in France 45 per cent, in Belgium 60 per cent, alcohol is used for the preparation of fluid extract of hamamelis.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 13.

Sayre and Zieffe report three samples of fluid extract of hamamelis examined, which were found to be below standard.—Bull. Kansas Bd. Health, 1909, v. 5, D. A. 16-23.

#### **HEXAMETHYLENAMINA.**

McWalter, J. C., in advocating hexamethylenetetramine for inclusion in the Ph. Brit., asserts that the chief difficulty is a suitable title.—Chem. & Drug., Lond., 1909, v. 74, p. 20.

An unsigned article discussing hexamethylenamine asserts that the pharmacopœial tests for this article are simple and easily applied, and the chemical should invariably be tested when received.—N. A. R. D. Notes, 1909, v. 9, p. 476.

Frothingham, Channing, finds that hexamethylenamine, when given subcutaneously in guinea pigs, either in single doses or in repeated doses, produces necrosis of the muscle and cellular reaction at the point of inoculation; it causes congestion of the stomach

vessels, and in some cases hæmorrhage into the mucosa, with ulcer formation.—Arch. Int. M., 1909, v. 4, pp. 510–515.

Crowe, S. J. (Bull. John Hopkins Hosp., April, 1909), reports experiments on the excretion of hexamethylenamine in the cerebrospinal fluid. The abstract summarizes his results.—J. Am. M. Ass., v. 52, p. 1624.

An editorial (N. York M. J., 1909, v. 89, p. 860) calls attention to the work of Crowe in the use of hexamethylenamine in meningitis. See also Therap. Gaz., 1909, v. 33, p. 707; and Midl. Drug. and Pharm. Rev., 1909, v. 43, p. 601.

Seifert, Otto, enumerates, among the secondary actions of hexamethylenamine, burning pains in the bladder and urethra, eruptions, and dizziness.—Apoth. Ztg., Berl., 1909, v. 24, p. 46.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 229–230) points out that hexamethylenetetramine in a test tube displays no inconsiderable bactericidal action. Advantage has been taken of this fact by Bernstein (Berl. zahnärzt. Halbmonatsschr., 1909, No. 21), who has successfully prescribed a tooth paste containing approximately 4 per cent of hexamethylenetetramine.

Additional references on the use of hexamethylenamine and related compounds will be found in Index Medicus and J. Am. M. Ass.

#### HOMATROPINÆ HYDROBROMIDUM.

Wood (C. A.), Jackson, Schneideman, and Davis express the belief that homatropine hydrobromide appears to meet all the demands made on it as a satisfactory ocular remedy.—J. Am. M. Ass., 1909, v. 53, p. 794.

Harbert, J. P., asserts that, next to atropine, homatropine is the best mydriatic we have for diagnostic purposes.—Eclectic M. J., Cincin., 1909, v. 69, pp. 189–190.

Brav, A. (Pennsylvania Med. J., 1909), reports a case of homatropine poisoning with complete transient aphasia.—J. Am. M. Ass., v. 52, p. 1623.

#### HUMULUS.

Mohl, A. (I. Teil. Geschichte des Hopfenbaues. Rakonitz, im Verlage der Ackerbau und Hopfenbauschule in Rakonitz in Böhmen, 1909, 4°. 222 pp. Preis 3,40 Kronen ö. W.) presents a historical review of the cultivation of hops from the earliest period to the present time.—Bot. Centralbl., 1909, v. 111, p. 528.

Fruwirth, C. (Hopfenbau und Hopfenbehandlung. 2. Aufl. Berlin, Parey 1908, 185 pp. 59 Abbild.) discusses the cultivation of hops; also presents some observations on the chemistry of hops and the uses of this drug.—*Ibid.*, 1909, v. 110, p. 511.

An unsigned article describes and illustrates a machine for picking hops.—*Sc. Am. Suppl.*, 1909, v. 68, p. 361.

Rusby, H. H., thinks that hops should not be used after keeping for more than one year.—*Midl. Drug.*, 1909, v. 48, p. 690. See also *Pharm. Era*, 1909, v. 42, p. 634.

Siller, Rud., discusses the chemistry of hops and reports a number of experiments to determine the nature and the quantity of the contained resins and acids.—*Ztschr. f. Unters. Nahr. u. Genussm.*, 1909, v. 18, pp. 241-271.

Beadle and Stevens discuss the utilization of spent hops as food-stuff for cattle, and report that in some spent hops examined by them they found in draining liquor as much as 8 to 10 per cent of sugars on the weight of dried hops, which by drying down would form part of the foodstuffs.—*Chemical News*, London, 1909, v. 100, p. 197.

#### **HYDRARGYRI CHLORIDUM CORROSIVUM.**

The White Cross Congress held in Paris in October, 1909, suggests that the words "and sublimes at about 295° C." be added to the requirements for mercury bichloride.—*Chem. & Drug. Lond.*, 1909, v. 75, p. 682. See also *Bull. sc. pharmacol.*, Par., 1909, v. 16, p. 424.

Schamelhout, A., commenting on the description of corrosive mercuric chloride proposed by the third section of the Second International Congress for the Repression of Adulteration, says that the Ph. Belg. does not tolerate the presence of iron. The maximum residue after incineration should be indicated.—*Bull. Soc. roy. d. pharm.*, Brux., 1909, v. 53, p. 181.

Merck, E. (Darmstadt) states that the requirement of the Ph. Fr. V, that corrosive sublimate dissolves in 5 parts of officinal ether is erroneous; it dissolves in 14 parts of ether (sp. gr. 0.72) as given by Ph. Germ. IV, Ph. Austr. VIII, Ph. Helv. IV, Ph. Ital. II [also III].—*Bull. sc. pharmacol.*, Par., 1909, v. 16, p. 551.

Kahn, Joseph, discusses the solubility of mercuric chloride and its relation to the manufacture of corrosive sublimate tablets. He thinks sufficient care is not exercised in the choice of a pure mercuric chloride.—*Proc. New York Pharm. Ass.*, 1909, p. 263.

Rupp, E., outlines a simple method for the direct titration of corrosive mercuric chloride by means of potassium cyanide.—*Apoth. Ztg.*, Berl., 1909, v. 24, p. 939.

Foote and Martin discuss the electrical conductivity of salts in fused mercuric chloride.—*Am. Chem. J.*, 1909, v. 41, pp. 451-457.

Dorset, M., discusses the use of bichloride of mercury, and points out that the chief advantage lies in its great germicidal power when employed under proper conditions. The disadvantages are its poisonous nature, its tendency to attack certain metals and the interference

by albuminoids and other organic substances.—*Spatula*, 1908-9, v. 15, p. 234.

Pitzman, Marsh, presents some observations on the behavior as a disinfectant of sublimate and silver nitrate in albumin containing liquids.—*Hyg. Rundschau*, 1909, v. 19, pp. 693-702.

Epstein and Pribram report observations on the hæmolysing properties of mercuric chloride.—*Ztschr. f. exper. Path. u. Therap.*, 1909-10, v. 7, pp. 549-555.

Hata, S., discusses the inhibition of ferment action by corrosive sublimate and the possible reactivation of the ferment.—*Biochem. Ztschr.*, Berl., 1909, v. 17, pp. 156-187.

Sturgis, Frederic R., thinks that the principal indictment against mercuric chloride is its uncertainty of action and its tendency to produce the poisonous effects of mercury, but thinks much of this is probably due to the improper manner of administration.—*Merck's Arch.*, 1909, v. 11, p. 78.

Kahn, Joseph, points out that the disinfectant action of mercuric chloride is decreased by the addition of metallic chlorides, especially in concentrated solutions. He also points out that solutions of mercuric chloride are notoriously prone to decompose on standing.—*Am. Druggist*, N. Y., 1909, v. 55, p. 6.

Harbert, J. P., states that mercuric chloride is frequently employed as a cleansing agent in purulent eye affections in the strength of 1:5,000 or 1:10,000. In a solution of 1:500 it is applied to the inner surface of the lids in trachoma.—*Eclectic M. J.*, Cincin., 1909, v. 69, p. 530.

Wallhauser, H. J. F., reports 2 cases of idiopathic multiple hæmorrhagic sarcoma successfully treated with bichloride of mercury.—*J. Am. M. Ass.*, 1909, v. 53, pp. 1608-1611.

Sargeant, F. P., asserts that corrosive sublimate is used as a fungicide. For dry rot a 3 per cent solution in methylated spirit is used. For seed dressing a much weaker aqueous solution is necessary. A solution is also employed for killing worms in lawns, etc.—*Drug Topics*, New York, 1909, v. 24, p. 356, from *Pharm. J.*, Lond., 1909, v. 29 (83), p. 236.

For additional references on the use of mercuric chloride see *Index Medicus* and *J. Am. M. Ass.*

#### HYDRARGYRI CHLORIDUM MITE.

Schamelhout, A., notes that the *Ph. Fr. V* includes two protochlorides of mercury: That obtained by precipitation, designated under the name of white precipitate, and that obtained by volatilization, designated under the names mild mercury, calomel à la vapeur, calomel. In Belgium the latter salt alone is officinal. The *Ph. Belg.*

III designates under the name white precipitate, mercuric chloramide.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 70.

The Belgian inspectors of pharmacies report calomel in an insufficient state of division; showing crystalline needles; debased by free mercury.—J. d. pharm. d'Anvers, 1909, v. 65, p. 585.

Schamelhout, A., states that one sample examined contained 2.5 per cent of free mercury.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 236.

Harbert, J. P., asserts that calomel is sometimes dusted upon the surface of the cornea for the removal of recent corneal opacities. It is of value as a dusting powder in phlyctenular keratitis and corneal ulcers. It should not be used when potassium iodide is taken internally, as an irritant compound is formed which causes a violent inflammation.—Eclectic M. J., Cincin., 1909, v. 69, p. 530.

Valeri, G. B., reports some observations on the modification of the purgative action of calomel by bile.—Arch. internat. de pharmacod. et d. therap., 1909, v. 19, p. 315.

Abt., Isaac A., reports experiments made to determine the irritating effects of the common cathartics on the intestinal mucosa of infants. Calomel seems to produce the greatest amount of irritation and castor oil the least.—J. Am. M. Ass., 1909, v. 53, p. 140.

Tivy, Cecil B. F., is much impressed with the beneficial effects of a dose of calomel as a curative for attacks of asthma. He prescribes a powder of calomel 0.5 to 2 gm. according to the habit of the patient, accompanied of course by some of the usual antispasmodic remedies.—Brit. M. J., 1909, v. 2, p. 882.

Posey, H. G., asserts that powder of mild chloride of mercury and jalap serves no good purpose, and should be omitted.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 993.

For additional references on the use of mild mercurous chloride see Index Medicus and J. Am. M. Ass.

#### HYDRARGYRI IODIDUM FLAVUM.

A committee of the Syndicat général de la Droguerie française asks that a 0.20 per cent residue after calcination be tolerated in protoiodide of mercury.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 289.

The Belgian inspectors of pharmacies report that they have more than once met with yellow iodide of mercury poorly prepared, containing a notable quantity of mercuric salt.—J. d. pharm. d'Anvers, 1909, v. 65, p. 587.

Schamelhout, A., notes that the pharmacist should look closely to the absence of mercuric from mercurous salts.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 258.

Stancanelli, P. (Giorn. internaz. d. Sc. med., 1908, No. 11), reports 25 cases of syphilis satisfactorily treated with mercuric protoiodide

after the method of Lévy-Bing.—Nouv. remèdes, Par., 1909, v. 25, p. 65.

Sturgis, Frederic R., thinks that the protoiodide of mercury is perhaps the best method of giving mercury internally, and it is very rare indeed that this remedy is not tolerated by the patient.—Merck's Arch., 1909, v. 11, p. 78.

#### HYDRARGYRI IODIDUM RUBRUM.

Lemaire, Paul, discusses the pharmacopœial [Ph. Fr. V] formula for solution of mercuric iodide in fixed oils, and comments on the solubility of mercuric iodide in various oils.—Répert. d. pharm., Par., 1909, v. 21, pp. 97-102.

Puckner, W. A., reports on the examination of mercuric iodide solutions for intramuscular injections.—J. Am. M. Ass., 1909, v. 52, p. 573.

Hinton, G. Allison, depends on biniodide of mercury, in a non-irritating neutral menstruum as an injection in the treatment of syphilis. His observations have convinced him that echinacea, phytolacca, iris, and other vegetable specifics fail absolutely in 95 per cent of the cases treated.—Nat. Eclectic. Med. Ass. Quart., 1909-10, v. 1, p. 114.

#### HYDRARGYRI OXIDUM FLAVUM.

Vanderkleed, C. E., reports that the yellow oxide of mercury can not be procured or made to meet the rigid requirements of the U. S. P. for absence of red oxide, foreign salts, and foreign metals.—Proc. Pennsylvania Pharm. Ass., 1909, p. 124.

Rosengarten, George D., points out that the test for the presence of red mercuric oxide has been justly criticised.—Am. Druggist, N. Y., 1909, v. 55, p. 366.

A committee of the Syndicat général de la Druguerie française asks that a 0.20 per cent residue after calcination be tolerated in yellow oxide of mercury.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 288.

The Belgian inspectors of pharmacies report yellow mercuric oxide as generally improved, though not fully satisfying the purity requirements (small quantities of silica and aluminum).—J. d. pharm. d'Anvers, 1909, v. 65, p. 587. See also Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 258.

Sargeant, F. Pilkington, asserts that mercuric oxide is used as a remedy for favus in poultry and enters into the composition of many foot-rot preparations.—Pharm. J., Lond., 1909, v. 29 (83), p. 236. See also Drug Topics, New York, 1909, v. 24, p. 356.

**HYDRARGYRI OXIDUM RUBRUM.**

The Belgian inspectors of pharmacies report red oxide of mercury as poorly prepared, contaminated by nitrate.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 587.

Schamelhout, A., remarks that there has been no improvement in this product.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 258.

**HYDRARGYRUM.**

Hildebrand, Joel H., discusses the purification of mercury and describes the method employed by him.—*J. Am. Chem. Soc.*, 1909, v. 31, pp. 933-935.

Murray, B. L., discusses the pharmacopœial requirements for mercury as an example of the lack of important tests. He points out that the Pharmacopœia requires that mercury must be 99.9 per cent pure. Only one-tenth of 1 per cent of impurities allowed, and no official assay method given by which to test.—*J. Ind. Eng. Chem.*, 1909, v. 1, p. 775.

Easley, C. W., in a preliminary paper reports the results of experiments to determine the atomic weight of mercury by finding the chlorine content of mercuric chloride.—*J. Am. Chem. Soc.*, 1909, v. 31, pp. 1207-1218.

Havenhill, L. D., points out that very few pharmacists make the official preparations of mercury, and assay processes for the galenicals containing metallic mercury are needed.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 800.

See also under Chemical Tests, p. 97.

The examination of drug samples in 1907 showed that of 29 samples of mercury preparations examined, 3 were found adulterated or not up to standard.—*Pharm. J., Lond.*, 1909, v. 28 (82), p. 182.

Bonnes, Jacques (*Bull. Sc. Biol.*), presents an exhaustive paper on the incompatibilities of mercury and its principal salts.—*J. d. pharm. d'Anvers*, 1909, v. 65, pp. 260-268.

Dulière, Walter, presents a paper on gray oil, giving formulas for the preparation of a number of oils of different strengths.—*Ann. d. pharm., Louvain*, 1909, v. 15, pp. 481-485.

Schamelhout, A., compares the formulas for gray oil as given in the *Ph. Fr. V*: Mercury 40, wool fat 26, vaseline oil 60; and in the formulary [Belgian]: Mercury 40, lanolin 12, vaseline 13, liquid paraffin 35.—*Bull. Soc. roy. d. pharm. Brux.*, 1909, v. 53, p. 55.

Zieler (*Münch. med. Woch.*, 1908, 46) presents a note on the preparation of mixtures having a high percentage of mercury for injections.—*J. d. pharm. et d. chim., Par.*, 1909, v. 29, p. 65.

Pernet, George, discusses the intramuscular treatment of syphilis, with special reference to the insoluble preparations of mercury—a

critical review.—*Lancet*, 1909, v. 177, pp. 212-216; 1100, 1172. See also article by French, H. C.—*Ibid.*, v. 177, pp. 920-924.

Bernart, William F., discusses intravenous injections of mercury. A report of 9,838 injections given for their antisyphilitic action.—*N. York M. J.*, 1909, v. 90, pp. 847-850.

An editorial (*Lancet*, 1909, v. 177, p. 406) calls attention to the warning of Gaucher as to the danger of injections of insoluble preparations of mercury in the treatment of syphilis.

An editorial (*Med. Rec.*, N. Y., 1909, v. 75, p. 234) discusses the dangers of mercurial injection and calls attention to the review by Lassere (*Ann. d. Dermat. et d. Syph.*, December, 1908) of fatalities and grave accidents which have occurred, 70 deaths and over 100 serious accidents having been reported.

Rothschuh, E., calls attention to the variations in the method of treating syphilis in different countries and discusses the use of mercury in its various forms.—*Folia Therap.*, Lond., 1909, v. 3, pp. 9-12.

Hay, Eugene Carson, presents a paper on the comparative value of the internal administration, inunction, and injection method of administering mercury in the treatment of syphilis.—*J. Am. M. Ass.*, 1909, v. 53, pp. 674-680.

Chance, Burton, presents some observations on the use of mercury by the ophthalmic surgeon. He points out that while our knowledge of the value of mercury in inflammations is clinical rather than experimental, empirical rather than scientific, yet it is based upon the general judgment of the profession after countless daily observed bedside facts, and it seems scarcely possible that it is not correct.—*Therap. Gaz.*, 1909, v. 33, pp. 843-850.

Spencer, George W., asserts that the selective action of mercury is on the glandular system and notably on the salivary glands and the pancreas, and, like the metals in general, has a tendency to accumulate in the liver from which it is excreted.—*J. Am. Inst.*, Homœop., 1909, v. 1, p. 515.

Dohi, Sh., discusses the action of mercury on syphilitic processes and reviews some of the literature.—*Ztschr. f. exper. Path. u. Therap.*, 1909, v. 6, pp. 171-185.

Bruck, Carl, discusses the influence of sulphur baths on the action of mercury in the treatment of syphilis.—*Ibid.*, v. 6, pp. 700-710.

Sturgis, Frederic R., thinks that most surgeons the wide world over agree that mercury is the alpha and omega of the treatment of syphilis; nothing else will take its place.—*Merck's Arch.*, 1909, v. 11, p. 77.

#### HYDRARGYRUM AMMONIATUM.

Zipkin, M., reports a study on the chemistry of white precipitate and the action of ethyl iodide and of methyl iodide on the unmelt-



able and meltable portion, respectively, of ammoniated mercury.—Apoth. Ztg., Berl., 1909, v. 24, pp. 661–662.

Sargeant, F. Pilkington, asserts that mercuric-ammonium chloride is used for the destruction of fleas and lice on birds and animals.—Pharm. J., Lond., 1909, v. 29 (83), p. 236.

#### HYDRASTINA.

McWalter, J. C., in recommending hydrastina for inclusion in the Ph. Brit., asserts that the alkaloid ought to be recognized, if only to distinguish it from the resinoid.—Chem. & Drug., Lond., 1909, v. 74, p. 20.

Labat, A., describes several new reactions of hydrastine, hydrastinin, and narcotine.—Bull. Soc. chim., Par., v. 5, pp. 742–743.

#### HYDRASTININÆ HYDROCHLORIDUM.

Düsterbehn points out that the Ph. Fr. V requires that hydrastinine hydrochloride be optically inactive and melt at 212° C. with decomposition.—Apoth. Ztg., Berl., 1909, v. 24, p. 239.

Frey, Ernst, discusses the influence of hydrastinine on blood vessels and reports a number of experiments to determine the influence of this substance on pulmonary circulation.—Ztschr. f. exper. Path. u. Therap., 1909–10, v. 7, p. 39.

#### HYDRASTIS.

Schneider, Albert, points out that hydrastis is grown something like ginseng, though some declare that artificial shading is not necessary.—Pacific Pharmacist, 1909–10, v. 3, p. 193.

Gane and Webster assert that considerable difficulty has been experienced of late years in obtaining golden seal free from admixture with other roots. During the last two years the principal difficulty has been the admixture of twin root, the root of *Jeffersonia diphylla*, a drug somewhat similar in outward appearance to golden seal, but wholly devoid of its peculiar medicinal properties.—Drug Topics, New York, 1909, v. 24, p. 4.

Rusby, H. H., thinks that the powder of hydrastis should be much more thoroughly studied than it has been.—Midl. Drug., 1909, v. 43, p. 690. See also Pharm. Era, 1909, v. 42, p. 634.

Schamelhout, A., states that, according to the Second International Congress for the Repression of Adulteration (Paris, 1909), hydrastis rhizome should contain at least 2 per cent of alkaloids.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 338.

Umney, J C., asserts that in connection with hydrastis rhizome the standard for alkaloids is, in his opinion, too low, and as the article is entirely used for medicinal purposes, a lower limit than 2.5 per

cent—viz., that of the U. S. P.—should not be recognized.—Chem. & Drug., 1909, v. 75, p. 580.

Rupp, E., discusses the determination of the hydrastine content of fluid extract of hydrastis, reviews the several methods that have been proposed, and suggests that one of the several modifications proposed by Van der Haar, Heyl, or Fromme be used in place of that now official in the Ph. Germ.—Apoth. Ztg., Berl., 1909, v. 24, pp. 922-923.

Caesar & Loretz (Geschäfts-Ber., 1909, pp. 85-86, 100-101) describe their method of assay for hydrastis and point out that the Ph. Germ., Ph. Ndl., U. S. P., and Ph. Helv. all require 2 per cent of hydrastine.

Mann, E. W., has compared the assay method of the U. S. P. and Ph. Germ. for hydrastine, and concludes that the former was found to possess many advantages in point of rapidity and ease of working, concordant results were obtained, and the separated alkaloid was not unduly colored.—Pharm. J., Lond., 1909, v. 28 (82), p. 366.

Dohme and Engelhardt point out that the U. S. P. uses a method for the determination of hydrastine in the drug, different from that used in the fluid extract, and that although there is very little difference in results obtained by using the one or the other of the two methods, for uniformity's sake it would be better to apply one method in both cases.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 882.

Labat, A. (Bull. Soc. d. pharm. d. Bordeaux, 1909, p. 391) discusses the reactions of the alkaloids of hydrastis and the assay of the officinal preparations of hydrastis.—Ann. d. pharm., Louvain, 1909, v. 15, pp. 447-451.

Lyons, A. B., thinks that the assays of hydrastis and its preparations serve their purposes well enough as they stand, although ether-soluble alkaloid does not necessarily mean hydrastine, and the value of hydrastis does not necessarily depend on its ether-soluble alkaloid. The use of the assay is mainly to guard against the fraudulent substitution for hydrastis of a drug from which the hydrastine has been extracted.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 807.

Düsterbehn points out that the Ph. Fr. V includes an identity test for berberine.—Apoth. Ztg., Berl., 1909, v. 24, p. 239.

Vanderkleed, C. E., reports 26 assays of hydrastis—lowest 2.670, highest 5.172 per cent hydrastine; all above standard.—Proc. Pennsylvania Pharm. Ass., 1909, p. 129.

Patch, E. L., found hydrastis containing from 2.28 to 3.42 per cent hydrastine.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 732.

Gane, E. H., reports 14 assays of hydrastis with from 2.13 to 3.33 per cent hydrastine. Hydrastis is frequently mixed with other roots, commonly serpentaria, twin root, and stems.—*Ibid.*, p. 732.

Plaut, Albert, points out that much of the available hydrastis is mixed with other roots or foreign substances largely because of the carelessness with which the drug is collected.—Am. Druggist, N. Y., 1909, v. 54, p. 98.

Kline, C. M., reports on two samples of supposed hydrastis which consisted almost entirely of twin leaf (*Jeffersonia diphylla*). Another sample was probably *Smilacina racemosa*, false spikenard, to which the name of golden seal is sometimes applied. Still another sample was not hydrastis, while another was *Xanthorrhiza apifolia*, commonly called yellow root or shrub yellow root.—Proc. N. W. D. A., 1909, p. 129.

Dunlap, Renick W., reports a sample of pulverized hydrastis which did not pass the examination.—Rep. Ohio Dairy & Food Com. (1909), 1910, p. 59.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 33) report two samples of hydrastis, labeled "fall dug," that yielded 3.03 and 3.4 per cent hydrastine by the U. S. P. process.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 12) assayed four samples of the rhizome of hydrastis by the method of the U. S. P., which varied from 3.16 to 4.83 per cent of hydrastine.

Caesar & Loretz (Geschäfts-Ber., 1909, p. 47) report that the hydrastine content of the available samples of hydrastis varied from 3.39 to 3.9, and that only one sample of the drug assayed as high as 4.10 per cent.

Caldwell, Paul, asserts that fluid extract of hydrastis should be dropped, as the alkaloid is used instead.—Bull. Pharm., 1909, v. 23, p. 115.

Blumenschein, Frederick J., asserts that fluid extract of hydrastis is a paradox in name, because 1 cc. does not represent 1 gm. of drug, but a pound of the drug assaying 2.5 per cent will yield 20 fluid ounces of fluid extract.—Am. Druggist, N. Y., 1909, v. 55, p. 40.

Schamelhout, A., states that in France the fluid extract of hydrastis is prepared with 70 per cent alcohol and should contain at least 2 per cent hydrastine; in Belgium with 60 per cent alcohol and should yield 20 per cent dry residue.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 13.

The Belgian inspectors of pharmacies report that the fluid extract of hydrastis, which has attained a very high price, is one of those which responds least to pharmacopœial requirements; its content of dry residue is frequently much too weak (8 to 10 per cent). Certain samples of foreign origin, on the contrary, are surcharged with extractive principles, but their minimum hydrastine content shows that they have been subjected to fraudulent manipulations for the purpose of extracting the alkaloid.—J. d. pharm. d'Anvers, 1909, v. 65, p. 625.

Schamelhout, A., thinks that the residue content is not sufficient to determine the quality of a fluid extract of hydrastis; the berberine and hydrastine content should also be taken into account. A good fluid extract contains from 2 to 2.5 per cent of hydrastine.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 268.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, pp. 33-36) present a comprehensive study of liquid extract of hydrastis, and the comparative amount of hydrastine contained in this preparation and in the drug from which it is made, and call special attention to the difficulty of completely exhausting the drug by the menstruum now in use.

Caldwell, Paul, points out that the price of glycerite of hydrastis is prohibitive. This preparation could be dropped and a corresponding amount of the alkaloid employed.—Bull. Pharm., 1909, v. 23, p. 116.

Mittelbach, William, asserts that glycerite of hydrastis can, and should be, made direct from the fluid extract of hydrastis. This would simplify the process very much.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 818.

Cook, E. Fullerton, reports that tincture of hydrastis is slightly cloudy when first finished, and contains, after standing about a year, a slight precipitate.—*Ibid.*, v. 57, p. 1002.

An editorial asserts that hydrastis is one of our best tonics to the mucous surfaces wherever they may be found, especially in cases which are of a subacute or chronic nature.—J. Therap. & Diet., 1909-10, v. 4, p. 102.

Harbert, J. P., finds hydrastis in connection with boric acid solution useful in all forms of conjunctival disease, especially in catarrhal conjunctivitis. A thick mucous discharge is the particular indication calling for its use.—Eclectic M. J., Cincin., 1909, v. 69, p. 528.

Boldt, H. J., considers that hydrastis, gossypium, ergot, and aletris have an important place in gynecologic materia medica, the combination of the four often quickly producing good results.—N. York M. J., 1909, v. 89, p. 370.

#### HYOSCINÆ HYDROBROMIDUM.

Wood (C. A.), Jackson, Schneideman, and Davis state that admitting the therapeutic value of hyoscine hydrobromide, scopolamine hydrobromide should be dropped.—J. Am. M. Ass., 1909, v. 53, p. 794.

Francis, John M., thinks that the pharmacopœial data do not justify the conclusion that hyoscine and scopolamine are identical or that their physiological action is the same. He thinks there is very great doubt as to whether this is true or not, and suggests that it might be well to take into consideration in the next revision the

question of drawing some distinction between them.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 820.

The committee on adulteration reports that it appears that from time to time the optically inactive variety of hyoscine hydrobromide is marketed.—Proc. Maryland Pharm. Ass., 1909, p. 73.

Dohme and Engelhardt report one shipment of hyoscine hydrobromide which melted at 181° C., and proved to be optically inactive.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 715.

Harbert, J. P., asserts that hyoscine is a more powerful mydriatic than atropine, produces mydriasis and loss of accommodation more quickly, but for a shorter period. Some authors claim that it acts five times more strongly on the pupil than atropine. It resembles that drug in its effects upon the nerve endings.—Eclectic M. J., Cincin., 1909, v. 69, p. 191.

Boldt, H. J., discussing the administration of anæsthetics, states that although it has been asserted that with the substitution of hyoscine for scopolamine, and the addition of cactin in preliminary narcosis, there is no risk, he has had one death with such combination and has seen two patients so close to death that it was a grave question as to their recovery. He has discontinued preliminary narcosis.—Med. Rec., N. Y., 1909, v. 75, p. 932.

#### HYOSCYAMINÆ HYDROBROMIDUM.

Wood (C. A.), Jackson, Schneideman, and Davis state that it is not necessary to retain two salts of hyoscyamine, and recommend that either the sulphate or the hydrobromide be rejected by the committee on revision.—J. Am. M. Ass., 1909, v. 53, p. 794.

#### HYOSCYAMUS.

Schneider, Albert, points out that henbane thrives well in California, but some carefully conducted tests are necessary to determine under what conditions of soil moisture this plant will do best. It will no doubt do well in the coast valleys.—Pacific Pharmacist, 1909-10, v. 3, p. 192.

Peckolt, Th., reports *Hyoscyamus niger* L. as occurring wild in the States of S. Paulo, Parana, Santa Catharina, and Rio Grande do Sul, Brazil.—Ber. d. pharm. Gesellsch., Berl., 1909, v. 19, p. 33.

Rusby, H. H., thinks that the limit of ash in hyoscyamus should be closely restricted so as to prevent the gathering up of earth, with accompanying filth. The method of assay should also be improved, as it is very common for operators to report a much lower assay than the sample is entitled to.—Midl. Drug., 1909, v. 43, p. 690. See also Pharm. Era, 1909, v. 42, p. 634.

Peters, W., gives the ash content of dried hyoscyamus as 19.37 to 24.89 per cent, and the color of the resulting ash as varying from light gray to light yellowish gray.—*Apoth. Ztg., Berl.*, 1909, v. 24, p. 538.

MacEwan and Forrester, discussing the need for international inquiry regarding variations in the activity of certain toxic drugs, discuss the nature and origin of hyoscyamus, and the variations either natural or artificial that have been noted in the chemical composition of the drug.—*Proc. VIIth Internat. Congress App. Chem., Sec. VIIIb, Pharmacy*, 1909, London, 1910, p. 87. See also *Chem. & Drug., Lond.*, 1909, v. 74, p. 878.

An editorial points out that the high price now quoted for henbane leaves indicates great scarcity, and naturally leads to substitution. *Hyoscyamus muticus* has been offered in place of *H. niger*.—*Pharm. J., Lond.*, 1909, v. 28 (82), pp. 578–579.

Gane and Webster assert that many of the shipments of hyoscyamus have been of the annual plant, whereas the U. S. P. requires that only the second-year leaf be used in the preparation of official products. They report assays of 7 lots of leaf, which varied from 0.061 to 0.082 per cent of alkaloid, and point out that the increasing amounts of *H. muticus* offered from abroad show that this variety is finding an outlet somewhere, and they have observed its presence in a sample of powdered drug offered in this market. Three samples of very stalky drug offered from abroad assayed, respectively, 0.93, 0.71, and 0.70 per cent of alkaloid. This is not up to the usual standard for this variety.—*Drug Topics*, New York, 1909, v. 24, p. 148.

Francis, J. M., reports that because of the scarcity of official hyoscyamus of proper quality, an attempt was made to import a considerable quantity of *H. muticus*, which was remarkable for its high content of alkaloid. While more or less of it undoubtedly got into circulation, yet it was quickly aired in the various journals, and the attempt was thwarted.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 124.

Hanausek, T. F., describes *H. muticus* L., and presents illustrations of the hairs and other structural characteristics of the leaves of that plant.—*Pharm. Post, Wien*, 1909, v. 42, pp. 269–270.

Wiley, H. W., reports that henbane leaves still show adulteration, and that some importers maintain that this commodity can not be purchased of the alkaloidal strength prescribed by the Pharmacopœia.—*Ann. Rep. U. S. Dept. Agric.*, for 1909, 1910, p. 430.

The A. Ph. A. committee on the drug market think that in view of the fact that the alkaloid of *H. muticus*, Egyptian henbane, has been proven to be almost pure hyoscyamine and the alkaloid content is far in excess of the content of the official drug, the question arises as to whether some mention of it should not be made in the U. S. P.—*Drug Topics*, New York, 1909, v. 24, p. 358.

Caesar & Loretz (Geschäfts-Ber., 1909, p. 91) recommend that hyoscyamus be assayed according to the method suggested by them for belladonna leaves.

Gane and Webster discuss the methods of assay employed for extracts of hyoscyamus, and outline a method, which they believe retains all of the advantages of the sawdust process, with a material shortening of the time required by manipulation.—Drug Topics, New York, 1909, v. 24, pp. 20-21. See also Merck's Rep., 1909, v. 18, pp. 142-143.

Dohme and Engelhardt call attention to the need for correction in the assay method for extract of hyoscyamus, and point out that the amount of liquid directed under extract of belladonna for dissolving 5 gm. will not suffice to extract 10 gm. of henbane and that a larger amount of menstruum should therefore be allowed.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 879.

Dunn, John A., recommends the use of an ether-chloroform mixture instead of chloroform for the assay of fluid extract of hyoscyamus.—*Ibid.*, p. 952.

Turner, Joseph L., in discussing the Ph. Germ. IV assay method for hyoscyamus, calls attention to the comparative study by Rupp of the Ph. Germ. IV, Merck's modified process, and the process contained in the Ph. Helv. IV.—Am. J. Pharm., Phila., 1909, v. 81, p. 127.

Wiki, B., criticizes the assay methods and figures of the Ph. Fr. V for extract of hyoscyamus.—Bull. sc. pharmacol., Par., 1909, v. 16, pp. 640-649.

Kottenhoff, G., prefers the process of the Ph. Helv. for the estimation of alkaloids in extract of hyoscyamus to that of the Ph. Belg. III, which he considers to be complicated and difficult.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 137.

Weitbrecht, W., asserts that the use of hematoxylon as an indicator in the Ph. Helv. IV for alkaloids of hyoscyamus leads to uncertain results. He prefers iodeosin as an indicator.—Pharm. Zentralh., 1909, v. 50, p. 113.

Bernegau, L. Henry, comments on the variation in the amount of material directed to be used for the assay of fluid extract, solid extract, and tincture of hyoscyamus, and points out that the amount used for the tincture is only about one-third of that used for the drug, about one-fifth of that for fluid extract, and about one-fourth of that used for solid extract.—Am. J. Pharm., Phila., 1909, v. 81, p. 125.

Watanabe, M., reports an investigation of the alkaloidal content of hyoscyamus and stramonium of Japanese origin. In hyoscyamus, devoid of the fruit capsules, he was able to demonstrate only a trace of alkaloid.—J. Pharm. Soc., Japan, 1909, p. 213. See also Proc.

VIIth Internat. Congress App. Chem., Sec. VIIIb, Pharmacy, 1909, London, 1910, p. 133, and Pharm. J., Lond., 1909, v. 28 (82), p. 870.

Pearson, W. A., reports the assay of 8 samples of hyoscyamus, which were found to contain from 0.036 to 0.102 per cent of mydriatic alkaloids.—Proc. Pennsylvania Pharm. Ass., 1909, p. 180.

Dohme and Engelhardt report that 3 out of 14 samples of henbane were rejected because of insufficient alkaloid.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 715.

Vanderkleed, C. E., reports 24 assays of henbane leaf; lowest 0.0185, highest 0.221 per cent mydriatic alkaloids; 13 above and 11 below standard.—Proc. Pennsylvania Pharm. Ass., 1909, p. 129.

Kline, C. M., reports the results of a series of assays of hyoscyamus: 0.036 to 0.102 per cent mydriatic alkaloids.—Proc. N. W. D. A., 1909, p. 130. See also p. 136.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 34) examined a small sample of "flowering tops," yielding 0.093 per cent alkaloid; the "first biennial" leaves contained close to 0.07 per cent alkaloid, and the "second biennial" ranged from 0.08 to 0.12 per cent. A sample of leaves of *H. muticus* yielded 0.7 per cent alkaloid.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 12) assayed 3 samples of Indian henbane offered to them from various sources, and found unusual variation in alkaloidal strength. Total alkaloid (by titration) 0.85, 0.22, 0.29 per cent.

Schamelhout, A., states that in France the extract of hyoscyamus is prepared according to the indications of the [Brussels] Conference; the alkaloids are estimated as in the extract of belladonna but the quantity is not indicated. In Belgium it should contain 0.3 per cent.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 13.

Turner, Joseph L., in discussing the decomposition of alkaloids in 4-year-old extracts of solanaceæ, reports a loss of alkaloids in preparations of hyoscyamus leaves of from 3 to 69 per cent, due, he thinks, possibly to bacterial action and not a chemical process.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 79.

Gane and Webster discuss the report made by Ribaut (Bull. sc. pharmacol.) regarding the keeping properties of solanaceous extracts, and point out that extract of henbane may possibly deteriorate on keeping, but that this apparent deterioration may be due to difficulties in making an accurate assay of so small an amount of alkaloid in so large a volume of extractive matter.—Drug Topics, New York, 1909, v. 24, p. 21.

Caldwell, Paul, thinks that fluid extract of hyoscyamus can be dropped for the reason that the tincture is used instead.—Bull. Pharm., 1909, v. 23, p. 115.

Cook, E. Fullerton, reports that the formula for tincture of hyoscyamus is satisfactory, but the resulting preparation has a slight precipitate.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1002.



Bernegau, L. Henry, thinks that the quantity of tincture of hyoscyamus directed by the U. S. P. assay process should be changed to 200 cc.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 80.

Rochester, A. S., in a paper on the care and treatment of opium smokers in the Philippines, thoroughly condemns the use of hyoscine as a substitute for morphine in this class of patients.—J. Am. M. Ass., 1909, v. 52, p. 353.

An editorial asserts that hyoscyamus will find many places where it fits in with admirable precision. One of its principal uses is for the control of the nerve centers which tend when excited to produce great restlessness and a consequent insomnia.—J. Therap. & Diet., 1909-10, v. 4, pp. 68-69.

Howes, Pitts Edwin, asserts that hyoscyamus is indicated in cases of acute rheumatic affections with increased temperature, restlessness and muttering delirium.—J. Therap. & Dietet., Boston, 1908-9, v. 3, p. 217.

Stephens, A. F., asserts that hyoscyamus is the remedy in all cases of pertussis showing cerebral hyperæmia with nervous excitement, and when sleep is disturbed by ugly dreams or partially wakeful delirium with spasmodic movements.—Nat. Eclectic. Med. Ass. Quart., 1909-10, v. 1, p. 125.

#### INFUSA.

A chapter in Practical Pharmacy discusses the process for making infusions, and illustrates a desirable infusion mug.—Pharm. J., Lond., 1909, v. 28 (82), pp. 275-276).

"N. N.," in discussing the practicability of keeping ready-made infusions, points out that this is not permitted by the Pharmacopœia and that preparations of this kind must be made extemporaneously.—Apoth. Ztg., Berl., 1909, v. 24, p. 756.

#### IODOFORMUM.

Guérin, G., presents a mode of production of iodoform.—J. d. pharm. et d. chim., Par., 1909, v. 29, p. 54.

Labat, A., criticizes the communication of Guérin.—*Ibid.*, 1909, v. 30, pp. 107-109.

Gane and Webster discuss the several methods for the determination of iodine in iodoform, and recommend the nitric acid method, adding the caution that the silver nitrate solution is to be added before the nitrous acid acts on the iodine to form iodic acid.—Ztschr. f. ang. Chem., 1909, v. 22, pp. 1059-1060.

Merck, E. (Darmstadt), commenting on the melting point of iodoform (Ph. Fr. V, +119°), says that iodoform partly decomposes on fusion so that there is no exactness about the melting point. He pro-

poses the following wording: Iodoform melts at about  $120^{\circ}$  partially decomposing.—Bull. *sc. pharmacol.*, Par., 1909, v. 16, p. 550.

Posey, H. G., asserts that aromatized iodoform N. F. is of very little use and should be dropped.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 988.

Diehl, C. L., reports from the committee on N. F. the recommendation that the synonym "Deodorized iodoform" be deleted and the formula dropped or modified.—*Ibid.*, p. 1072.

Mittelbach, William, asserts that the formula for iodoform ointment is a very good one.—*Ibid.*, p. 817.

Bennett and Woolcock, in an article on sterilization in pharmacy, present a formula for iodoform emulsion and discuss methods for sterilizing the same.—Pharm. J., Lond., 1909, v. 28 (82), p. 492.

An abstract (Rev. Trimestr. Suisse d'Odont.) points out that the best method of removing the disagreeable odor of iodoform from the hands is to wash them in a solution of linseed meal.—Dental Cosmos, Philadelphia, 1909, v. 51, p. 269.

An editorial (Critic & Guide, 1909, v. 12, p. 41) objects to the use of iodoform in ambulant surgical cases, and asserts that a physician using iodoform on an ambulant patient deserves a reprimand at least.

Harbert, J. P., asserts that iodoform, iodosyl, aristol, and similar preparations, in impalpable powder, may be dusted upon corneal abrasions or ulcers, and are used as a dressing for wounds or after plastic operations upon the lids.—Eclectic M. J., Cincin., 1909, v. 69, p. 530.

Engelhardt, H., calls attention to the various substitutes that have been offered for iodoform.—Proc. Maryland Pharm. Ass., 1909, pp. 107-113.

Additional references on the use of iodoform will be found in Index Medicus and J. Am. M. Ass.

## IODUM.

Chattaway, F. D., reviews the history of the discovery of iodine, and points out that iodine was discovered by the French chemist Bernard Courtois who first prepared it in a pure state; Gay-Lussac thoroughly investigated it, demonstrated its close relationship to chlorine, established its elementary nature, and named it. Davy did little more than make these discoveries known in England.—Chem. News, Lond., 1909, v. 99, pp. 193-195.

Baxter and Tilley report their experimental work on the revision of the atomic weights of iodine and silver.—J. Am. Chem. Soc., 1909, v. 31, pp. 201-221. See also Chemical News, London, 1909, v. 100, p. 310-313.

Gooch and Perkins outline a method for the gravimetric estimation of free iodine by means of metallic silver.—*Ztschr. f. anorg. Chem.*, 1909, v. 63, pp. 318–324. See also *Chem. News*, London, 1909, v. 100, pp. 308–310.

Bugarszky and Horvath outline a new method for the quantitative estimation of iodines and free iodine by using bromine water as an oxidizing agent.—*Ztschr. f. anorg. Chem.*, 1909, v. 63, pp. 184–196.

Winterstein and Herzfeld outline a simple method for the estimation of iodine.—*Ztschr. f. physiol. Chem.*, 1909, v. 63, pp. 49–51.

Gane and Webster outline methods for the estimation of iodine in iodoform and thymol iodide.—*Ztschr. f. ang. Chem.*, 1909, v. 22, pp. 1059–1060.

Paolini, V. (*Inst. chim. pharm., R. Univ., Rome. Mon. sci.*, 23, 648), gives a new method for the detection and determination of iodine in organic substances that Bonanni, Baldoni, and Nardelli have found through following his (the author's) suggestion.—*Chem. Abstr. Am. Chem. Soc.*, 1910, v. 4, p. 83.

Riggs, Louis W., suggests some further improvements of Bauman's method for the determination of iodine in protein combinations.—*J. Am. Chem. Soc.*, 1909, v. 31, pp. 710–717. See also *Chem. News*, London, 1909, v. 100, p. 91, 94.

Seidell, Atherton, discusses the determination of iodine in thyroid, and comments on the paper by Riggs, whose observations, Seidell believes, resulted from a failure to remove completely the residual iodine from the acid aqueous layer before applying his reduction process.—*J. Am. Chem. Soc.*, 1909, v. 31, pp. 1326–1329.

Hildebrand and Glascock report observations on the color of iodine solutions and point out that the brown color of certain iodine solutions is due to a combination of iodine with a solvent.—*Ibid.* pp. 26–31.

Waentig, Percy, presents some observations on the condition of dissolved iodine, and presents a number of illustrations showing the spectrum of iodine dissolved in various solvents.—*Ztschr. f. physik. Chem.*, 1909–10, v. 68, pp. 513–571.

Collitt, Bernard, discusses the production of volumetric solution of iodine, and points out that with regard to testing the iodine solution it has been found that the result obtained with pure dry antimony potassium tartrate agrees well with that obtained with the best grades of pure crystallized sodium thiosulphate.—*Pharm. J., Lond.*, 1909, v. 28 (82), p. 115.

Bachman, Gustave, reports that the iodine examined varied from 97.67 to 99 per cent pure.—*Proc. Minnesota Pharm. Ass.*, 1909, p. 71.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 35) report finding lead in two samples of commercial iodine; one containing 0.12 per cent.

Prowell, T., outlines a method for making tincture of iodine U. S. P. by circulatory displacement.—*Bull. Pharm.*, 1909, v. 23, p. 34.

An unsigned article describes and illustrates an apparatus for the making of tincture of iodine by circulatory displacement.—*Ztschr. d. allg. österr. Apoth.-Ver.*, Wien, 1909, v. 47, p. 131.

Aschof, K., asserts that he has been using circulatory displacement in the making of tincture of iodine for upward of 30 years.—*Pharm. Post*, Wien, 1909, v. 42, p. 200.

Hugenholtz, M. G. (*Rev. Pharm. des Flandres*) shows that tincture of iodine is best preserved in bottles only partly filled and exposed to the light. The paper shows that the tincture does not keep so well in amber bottles.—*Chem. & Drug*, Lond., 1909, v. 74, p. 780.

Thurston, Azor, discusses the assay of tincture of iodine.—*J. Ind. Eng. Chem.*, 1909, v. 1, pp. 789-790.

An editorial (*Practical Druggist*, 1909, v. 26, p. 160) calls attention to the poor quality of the tincture of iodine sold in Maine, and quotes Charles D. Woods, director of the food and drug laboratory of Maine, who reports that during the year he had examined 220 samples of tincture of iodine, and that only 4 per cent of them had been found to be in exact accordance with the standard.

An editorial (*Am. Druggist*, N. Y., 1909, v. 54, p. 105) calls attention to a statement made by H. E. Barnard, that there is comparatively little or no volatilization of iodine from tincture of iodine when this preparation is kept under ordinary conditions at normal temperatures. See also *Drug. Circ.*, N. Y., 1909, v. 53, p. 6.

Dunlap, Renick W., calls attention to the fact that a few druggists continue to sell and dispense a tincture of iodine which contains no potassium iodide, or an insufficient amount and warns druggists of Ohio that the department will regard the omission of this substance as a deliberate adulteration.—*Rep. Ohio Dairy & Food Com.* (1909), 1910, p. 41. See also *Midl. Drug.*, 1909, v. 43, p. 355.

Dunning and Sayre present some observations on commercial tinctures of iodine.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 868-870. See also *Am. J. Pharm.*, Phila., 1909, v. 81, p. 437, and *Drug Topics*, New York, 1909, v. 24, p. 291.

An editorial (*Drug Topics*, New York, 1909, v. 24, p. 289) points out that tincture of iodine is a perennial source of trouble and calls attention to the report made by Sayre and Dunning, who assert that tincture of iodine does not become weaker but stronger from evaporation. The alcohol volatilizes before the iodine.

An editorial (*Bull. Pharm.*, 1909, v. 23, p. 227) comments on the variation that has been found in tinctures of iodine, and asserts that the resulting figures represent an exceedingly unfortunate showing.

*Table showing some of the variations from the official strength of tincture of iodine reported during 1909.*

| Reporters.                 | Number of samples— |           | References.  |
|----------------------------|--------------------|-----------|--|
|                            | Examined.          | Rejected. |  |
| Diekman, Geo. C.....       | 782                | 78        | Rep. New York State St. Pharm. (1909) 1910, pp 11 ff.    |
| Lythgoe, Hermann C.....    | 156                | 23        | Rep. Massachusetts Bd. Health (1909) 1910, p. 477.       |
| Fitz-Randolph, R. B.....   | 50                 | 21        | Rep. New Jersey Bd. Health (1909), 1910 p. 195           |
| Hill, Edward C.....        | 8                  | 1         | Bull. Colorado Bd. Health, 1909, v. 9, No. 1 p. 2        |
| Sayre and Zieffe.....      | 149                | 132       | Bull. Kansas Bd. Health, 1909, v. 5, D. A., 16-23        |
| Army, H. V.....            | 8                  | 4         | Proc. Ohio Pharm. Ass., 1909, p. 65.                     |
| Dunlap, Benick W.....      | 32                 | 23        | Rep. Ohio Dairy and Food Com., 1909, p. 60.              |
| Street, John Phillips..... | 48                 | 15        | Rep. Connecticut Agric. Exper. Sta. (1909), 1910 p. 269. |
| Woods, Chas. D.....        | 220                | 106       | Rep. Maine Agric. Exper. Sta. (1908), 1909, App 2, p. 2. |
| Thurston, Azor.....        | 18                 | 8         | Proc. Ohio Pharm. Ass. 1909, p. 64.                      |

Ladd, E. F., reports that the samples of tincture of iodine ranged between 30 and 339 per cent of the required strength. Quite a good many samples showed no potassium iodide. He thinks this variation is indicative only of carelessness.—Proc. North Dakota Pharm. Ass., 1909, p. 69.

Bachman, Gustave, reports that tincture of iodine was found to contain from 5.42 to 7.25 per cent of iodine.—Proc. Minnesota Pharm. Ass., 1909, p. 71.

The Belgian inspectors of pharmacies report that tincture of iodine is badly made, having the iodine in large part undissolved. The required amount may be in the bottle, but care is not taken to see that it is in solution. The strength varies in different parts of the fluid according as the alcohol is more or less saturated.—J. d. pharm. d'Anvers, 1909, v. 65, p. 625.

Schamelhout, A., states that the analytical laboratory examined 6 samples varying between 4.25 and 7.80 per cent free iodine, 0.003 and 1.42 combined iodine, and 4.253 and 8.07 per cent total iodine. He asks whether the inspectors have never found tincture of iodine prepared with methyl alcohol.—Bull. Soc. roy. d. Pharm., Brux., 1909, v. 53, p. 269.

The examination of drug samples in 1907 showed that of 49 samples of tincture of iodine examined, 4 were found adulterated or not up to standard.—Pharm. J., Lond., 1909, v. 28 (82), p. 182.

Mittelbach, William, asserts that the formula for iodine ointment is a very good one.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 817.

Caldwell, Paul, states that the glycerin in iodine ointment should be replaced by alcohol and one-half the quantity used. The lard could be replaced with a better and cheaper base by using paraffin,

300 parts, and petroleum, 700 parts, or the proper proportion of simple ointment.—*Bull. Pharm.*, 1909, v. 23, p. 117.

Apple, Franklin M., presents a formula for glycerite of iodine to be used in making iodine ointment.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 1132-1133.

Baird, J. W., quotes W. A. Hurlbert's report on 15 samples of iodine ointment made on prescription by Boston drug stores. The iodine varied between 0.6 and 3.97 per cent and the potassium iodide between 1.19 and 6.45 per cent. None of the samples contained the right amount of both iodine and potassium iodide.—*Proc. Massachusetts Pharm. Ass.*, 1909, pp. 121-122.

Bachman, Gustave, found compound solution of iodine to contain from 3.65 to 4.53 per cent iodine.—*Proc. Minnesota Pharm. Ass.*, 1909, p. 71.

Hilton, Samuel L., asks why should decolorized tincture of iodine be called tincture of iodine when it has lost all of the properties of iodine by converting it into an iodide and iodate of ammonium and sodium. Pharmacy would lose nothing if it were dropped.—*Pharm. Era*, 1909, v. 41, p. 254°.

Posey, H. G., asserts that much has been said, pro and con, concerning the formula for decolorized tincture of iodine, but after all is said and done it seems to be a fairly good one, and its product in his hands has given entire satisfaction.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 996.

Moloney, Patrick, finds iodine crystals, 30 to 40 grains to the ounce of saponated petrolatum, a quick and effective remedy for the pain of insect bites.—*J. Am. M. Ass.*, 1909, v. 52, p. 136.

Boshouwers, H., recommends the use of a chloroform solution of iodine in place of tincture of iodine.—*Therap. Neuh.*, 1909, v. 4, p. 59.

Purlet (*Bull. pharm. Lyon*, 1908, p. 326) discusses the advantages and disadvantages of chloroform tincture of iodine. The abstract closes with the query as to whether it would not be more simple, if one fears pain or a burn, to add a little glycerin to the ordinary tincture of iodine.—*Bull. Soc. roy. d. pharm.*, Brux., 1909, v. 53, p. 17.

Harbert, J. P., asserts that iodine dissolved in glycerin, in the strength of 5 grains to the ounce, is occasionally applied to the everted lids for trachoma. The tincture of iodine may be used for disinfecting and cauterizing infected ulcers of the cornea.—*Eclectic M. J.*, Cincin., 1909, v. 69, p. 530.

Maberly has used with good results tincture of iodine, both internally and subcutaneously, as an antidote to phenol.—*Nouv. remèdes*, 1909, v. 25, p. 167.

An abstract points out that French surgeons are advocating the use of tincture of iodine for rendering the skin aseptic before performing surgical operations. After dry shaving the part to be

operated upon, it is simply swabbed with tincture of iodine, which is wiped off with sterile gauze.—Chem. & Drug., Lond., 1909, v. 74, p. 518.

Jewett, Charles, urges the use of a 10 or 12 per cent tincture of iodine for skin disinfection in abdominal and other operations. The tincture should be specially prepared for the purpose, and kept in well-stoppered bottles.—Med. Rec., N. Y., 1909, v. 76, p. 271.

Sutton, Guy, discusses the use of iodine on the skin as an antiseptic in surgical work, and points out that it is easy of application, inexpensive, not violently irritant, and highly efficient.—Vet. J. Lond., 1909, v. 65 (new series, v. 16), pp. 248-249.

Dohi, Sh., discusses the influence of iodine and its preparations in the treatment of syphilis and their action on the immunizing substances of the organism.—Ztschr. f. exper. Path. u. Therap., 1909, v. 6, pp. 171-185.

Erlenmeyer and Stein report observations on the action of iodine and iodine compounds. They conclude that organic iodine combinations act only on the liberation of iodine in the body, and that iodism is an unavoidable accompaniment of iodine action.—Therap. Monatsh., Berl., 1909, v. 23, pp. 133-145.

Winternitz, H., completes some comparative observations on iodine and criticizes the article by Erlenmeyer and Stein.—*Ibid.*, pp. 409-414.

Heubner, W., comments on the paper by Winternitz on iodine action and agrees with him in his criticism of the assertions made by Erlenmeyer and Stein.—*Ibid.*, pp. 545-546.

An abstract (J. Odont. d. Paris) recommends the use of the solution of potassium iodide or sodium bisulphite or hyposulphite for removing iodine spots from the hands.—Dental Cosmos, Philadelphia, 1909, v. 51, p. 682.

An editorial (Critic & Guide, 1909, v. 12, pp. 161-162) calls attention to the use of iodine as a disinfectant, and points out that a paper by Bionet which appeared in the American Medical Times for August 11, 1860 (p. 98), asserts that "The foulest sores may be rendered entirely free from offensiveness by application of tincture of iodine."

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 236-237) quotes Esau (Med. Klinik, 1909, p. 811) who believes iodine benzin to be a valuable remedy for protecting the skin and for preventing eczema.

The same publication (pp. 237-245) also reviews the literature relating to the use of a number of unofficial compounds of iodine.

For additional references on the pharmacology and therapeutics of iodine, see Index Medicus and J. Am. M. Ass.

## IPECACUANHA.

Holmes, E. M., presents a note on the cultivation of ipecac, and calls attention to the analysis of ipecacuanha root made by M. G. S. Blake, pointing out the possibility of using the mineral constituents most commonly found in ipecac root as a fertilizer.—Pharm. J., Lond., 1909, v. 28 (82), p. 765.

A committee of Section III, Second International Congress for the Suppression of Adulterations (Paris, 1909), proposes as the definition of ipecac root: The dried root of Brazil ipecacuanha, *Uragoga ipecacuanha* H. Bn. (*Rubiaceæ*) and gives its characters. A supplementary note refers to Carthagena ipecac *U. granatensis* H. Bn. as a substitute, and states that it should be sold only under its proper name.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 349.

Schamelhout, A., commenting on this definition and description of ipecac root, calls attention to the requirements of the international conference and of the Ph. Belg. III. The moisture content should be indicated.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 163.

Peters, W., gives the moisture content of ipecac as 7.54 per cent; the ash content of the air-dry drug as 4.45 per cent; the ash content of the dried drug as 4.81 per cent; and the color of the resulting ash as light gray.—Apoth. Ztg., Berl., 1909, v. 24, p. 538. See also Schweiz. Wchnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, p. 663.

Hartwich, C., calls attention to some of the characteristics of true ipecac, and describes and illustrates the structural characteristics of a new ipecac evidently from a species of *Cephaëlis*, grown in Bolivia.—Schweiz. Wchnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, pp. 127-129, 141-146.

Rusby, H. H., thinks that the alkaloidal requirement for ipecac should be raised. He also renews his recommendation that Carthagena and Rio varieties should be separated in the Pharmacopœias.—Midl. Drug., 1909, v. 43, p. 690. See also Pharm. Era, 1909, v. 42, p. 634.

Marris, G. W., asserts that the woody portion of ipecacuanha is to be removed before using, and that the alkaloidal content is equal to nearly 2 per cent of emetine and cephaëline. Good commercial samples occasionally reach this figure, but in general the content is rather less.—Chem. & Drug., Lond., 1909, v. 74, p. 380.

Lyons, A. B., discusses the official assay of ipecac and suggests a number of changes.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 807. See also Proc. VIIth Internat. Congress App. Chem., Sec. VIIIb, Pharmacy, 1909, London, 1910, p. 110.

Dohme and Engelhardt point out that Umney and Bennet, as well as other investigators, have found that ether extracts the two principal alkaloids of ipecac—emetine and cephaëline—as well as chloroform, and that the resulting ether extracts can easily be titrated,



while the alkaloids obtained by extracting with chloroform are of a very dark color.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 883.

Caesar & Loretz (*Geschäfts-Ber.*, 1909, pp. 97-98) outline the Panchaud method for the assay of ipecac. They point out that, with the single exception of the U. S. P., all of the recently published pharmacopœias require 2 per cent of alkaloids. The original requirement of 2 per cent of alkaloids in the U. S. P. was recently reduced to 1.75 per cent.

Vandermeulen, Alfred, contributes a note on the rapid estimation of powdered ipecac.—*Ann. d. pharm.*, Louvain, 1909, v. 15, pp. 289-291.

Kottenhoff, G., finds the Ph. Belg. process for the estimation of the alkaloids of ipecac complicated and difficult of manipulation. The process of the Ph. Helv. he thinks is rapid and gives very good results.—*Bull. Soc. roy. d. pharm.*, Brux., 1909, v. 53, p. 136.

The Belgian inspectors of pharmacies state that ipecac roots are no longer employed as such. They serve for the preparation of the assayed powder deprived of the woody fiber. The roots often found ground up with the wood are wrongfully used for infusions. The powder has not always the required strength of emetine.—*J. d. pharm.* d'Anvers, 1909, v. 65, p. 550.

The committee on drug market quote Hartwich to the effect that a false variety of caphaëlis, dirty gray brown color, 0.4 to 1.2 cm. thick, microscopically resembles the genuine. The characteristic globular elevations are more pronounced than in the genuine.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 733.

Cæsar & Loretz (*Geschäfts-Ber.*, 1909, p. 43) point out that the unusually low prices prevailing for ipecac have been the cause for a distinct reduction in the available amount of this drug. The price for Rio ipecac has advanced materially, the Jobore variety is entirely absent from the German market, and even Cartagena ipecac is becoming scarce.

Gehe & Co. (*Handelsbericht*, 1909, pp. 90-91) present tables showing the amount of ipecac imported into London from 1906 to 1908 inclusive, also showing the relative values of Cartagena and Rio ipecac.

Vanderkleed, C. E., reports 26 assays of ipecac; lowest 1.401, highest 2.680 per cent alkaloids; 25 above and 1 below standard.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 129.

Dohme and Engelhardt report that only 1 sample of ipecac out of 8 had to be rejected, and that because it contained only 1.94 per cent total alkaloids.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 715.

Kebler, Lyman F., at a meeting of the city of Washington branch, exhibited a sample of powdered ipecacuanha that consisted of ap-

proximately 2 parts of powdered olive pits to 1 part of ipecacuanha.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 20.

Southall Bros. and Barclay (Rep. 1908-9, Birmingham, 1910, p. 13) report the assay of 30 samples of ipecac, using the method of the U. S. P., the average percentage of alkaloid obtained being 1.98, a figure somewhat higher than noted in their last report.

Gordin, H. M., in making a plea for identification tests for galenical preparations, points out that by substituting hot benzene, which is cheap, for the expensive alcohol, in the preparation of the fluid extract of ipecac, and dissolving the residue in water containing just enough alcohol to preserve the extract from getting moldy, a preparation can be obtained that will show the proper strength of emetine, as this alkaloid is easily extracted by hot benzene, which solvent, however, does not extract all of the other ingredients of the drug.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 43. See also Am. Druggist, N. Y., 1909, v. 54, p. 4.

Beringer and Beringer suggest an improved formula for sirup of ipecac, using the powdered drug instead of the fluid extract.—Proc. New Jersey Pharm. Ass., 1909, p. 90. See also Am. J. Pharm., Phila., 1909, v. 81, pp. 313-314.

Chevalier reports a case of intoxication in an infant of 18 months caused by falsification of sirup of ipecac. He prefers to prescribe powdered ipecac in a gummy pulp.—J. d. pharm. et d. chem., Par., 1909, v. 29, p. 315.

Schamelhout, A., notes that the French sirup of ipecac contains 1 per cent of extract. This is a derogation to the decisions of the International Conference for the Unification of Heroic Medicaments.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 78.

Evers, H., discusses the making and the use of an infusion of ipecac, and presents a formula for a preparation which fully represents the active ingredients of this drug.—D. A. Apoth. Ztg., N. Y., v. 30, p. 35.

Swan, M., makes suggestions for the improvement of the method of preparing tincture of ipecacuanha.—Chem. & Drug., Lond., 1909, v. 74, p. 883. See also Proc. VIIth Internat. Congress App. Chem., Sec. VIIIb, Pharmacy, 1909, London 1910, p. 139.

Riedel's Berichte (Berlin, 1909, p. xlv) presents a monograph on emetine, including an enumeration of properties and tests, and points out that the melting point of this article is not constant but ranges somewhere in the neighborhood of 90° C.

Dock, George, presents a note on the ipecac treatment of amoebic dysentery; he uses salol-covered pills in doses of 30 to 60 grains at first, and then 20 to 40 grains, twice a day for 3 days.—N. York M. J., 1909, v. 90, p. 49.

Rogers, Leonard, presents some observations on the prevention of tropical abscess of the liver by the treatment of the presuppurative stage with ipecacuanha.—*Therap. Gaz.*, 1909, v. 33, pp. 381-385.

Webb, Frank, asserts that ipecac is indicated in all cases of asthma where the cough is dry and spasmodic, with constant and continual nausea, with flatulent colic and pain in the umbilical region.—*J. Therap. & Diet.*, 1909-10, v. 4, p. 109.

Felter, H. W., states that ipecac has scored many victories in summer diarrhoeas of children. The long, pointed tongue, with nausea, point to its selection. It is frequently indicated with aconite.—*Eclectic M. J.*, Cincin., 1909, v. 69, p. 451.

Additional references on the use of ipecac will be found in *Index Medicus* and *J. Am. M. Ass.*

### JALAPA.

Umney, J. C., in connection with the proposed international standard for jalap, asserts that 7 per cent of "ether-soluble" resin is suggested as a minimum. This should read *alcohol*-soluble, which is practically in accordance with the French Pharmacopœia. The U. S. P. (corrected edition) requires 7 per cent of alcohol-soluble resin, of which not more than 15 per cent should be soluble in ether. No doubt in view of the difficulties that have occurred in obtaining resin of pharmacopœial percentage, the figure will be lowered in the new Ph. Brit.—*Chem. & Drug.*, 1909, v. 75, p. 580.

Rusby, H. H., asserts that it is not improbable that the collection of jalap containing from 12 to 18 per cent of resin is entirely feasible. This subject should be investigated in the home of the drug, and if such is the case the requirement should be raised and insisted upon.—*Pharm. Era*, 1909, v. 42, p. 634.

Power and Rogerson report the results of the chemical examination of jalap, and assert that resin of jalap is of much more complex composition than has hitherto been assumed.—*Proc. VIIth Internat. Congress App. Chem.*, Sec. IVa 1, Organic Chemistry, 1909, London, 1910, pp. 324-329. See also *Pharm. J.*, Lond., 1909, v. 29 (83), pp. 7-8.

Gane and Webster assert that jalap is steadily deteriorating in quality and that notwithstanding the reduction in strength by the U. S. P. from 8 to 7 per cent it is difficult to secure a product that will assay up to this reduced standard. They think that properly cultivated there should be no difficulty in obtaining jalap that would, as formerly, average about 15 per cent.—*Drug Topics*, New York, 1909, v. 24, p. 68.

Caesar & Loretz (*Geschäfts-Ber.*, 1909, p. 111) outline the Fromme method for estimating the resin content of jalap, and point out that

the Ph. Japon. and Ph. Helv. require 10 per cent, the Ph. Germ. 9 per cent [Ph. Germ. V 10 per cent], and the U. S. P. 7 per cent of resin.

Scoville, Wilbur L., has made an experimental study of the U. S. P. method of determining the percentage of resin in jalap. He finds it to extract only 82 per cent of the resin, and that still lower results are obtained by resorting to precipitation with water. He gives a summary of these results.—*Bull. Pharm.*, 1909, v. 23, pp. 194–195.

Dohme and Engelhardt have experienced no trouble in carrying out the assay process for jalap as outlined in the U. S. P. For determining the total resin, they prefer Keller's method, modified by Fromme, which they outline.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 883.

Clark, A. H., presents a note on the assay of jalap in which he suggests removing the ether from the ether-extracted drug before continuing the percolation with alcohol, and asserts that no emulsion forms when this is mixed with chloroform and water, no matter how violently it be shaken.—*Ibid.*, pp. 878–879. See also *Am. J. Pharm.*, Phila., 1909, v. 81, p. 431.

Gane and Webster assert that the U. S. P. process for the assay of jalap is satisfactory except in one respect, the emulsification that takes place when the percolate is treated with chloroform and water, and shaken. For breaking this emulsion they recommend the addition of 0.5 cc. of hydrochloric acid.—*Drug Topics*, New York, 1909, v. 24, p. 68.

Cowie, W. B., discusses the possible use of optical rotation in the assay of jalap, scammony, orizaba, and tampico resins, and presents a table showing the comparison of the values obtained for the optical activities of these resins.—*Brit. & Col. Drug.*, 1909, v. 55, p. 63.

The committee on adulteration reports that in case of jalap it experienced the same difficulty as in years previous; it is hardly possible to obtain a root with the proper amount of resin as required by the Pharmacopœia.—*Proc. Maryland Pharm. Ass.*, 1909, p. 73.

The A. Ph. A. committee on the drug market think that in view of the steadily increasing output of immature jalap with consequently low yield of resin it may be advisable to drop the crude drug from the U. S. P. and replace it in all preparations by the resin of jalap, to secure uniform results.—*Drug Topics*, New York, 1909, v. 24, p. 358.

Kline, C. M., points out that powdered jalap is frequently sold for 2 cents advance over the price of the whole drug, despite the fact that the loss in drying is from 4 to 10 per cent, according to the age and dryness of the root, and in addition comes the cost of powdering.—*Proc. N. W. D. A.*, 1909, p. 122.

Dohme and Engelhardt report 3 out of 8 samples of jalap rejected because the amount of resin was below the U. S. P. requirements. In only 1 case did they obtain a large shipment of this tuber, which assayed as high as 11 per cent resin.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 715.

Gane and Webster report on a lot of 8 bags of new-crop jalap that assayed 23.88 per cent of resin with only 1.25 per cent of ether soluble. They think that this is the record sample for recent years, and it shows what can be done with the root under proper cultivation and collection.—*Drug Topics*, New York, 1909, v. 24, p. 229.

Gane, E. H., asserts that importations of jalap are nearly all immature root, assaying very low: 6.3 to 7.28 per cent with average of 1.02 per cent ether-soluble resin.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 733.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 36) report several buying samples of jalap which were found to yield 6 to 11 per cent of resin. They extract the resin from the drug in 60 powder by boiling with 95 per cent alcohol and express the belief that a more expeditious method for the assay of jalap than the present one might be made official with advantage.

Southall Bros. & Barclay (*Rep.*, 1908-9, Birmingham, 1910, p. 13) report that out of 11 samples of jalap assayed, 4 only have proved to contain sufficient resin to satisfy the *Pharmacopœia* requirements. The percentages obtained ranged from 6.30 to 12.80; average, 8.47.

Caesar & Loretz (*Geschäfts-Ber.*, 1909, p. 57) assert that the available supplies of jalap are being held at an unusually high price.

#### KAOLINUM.

Schelenz, H., presents a history of the medicinal earths and of cataplasma kaolini.—*Am. J. Pharm.*, 1909, v. 81, pp. 111-116. See also D.- A. Apoth. Ztg., N. Y., 1909-10, v. 30, pp. 1-2, and *Bull. sc. pharmacol.*, Par., 1909, v. 16, pp. 197-200.

The report of the United States Geological Survey on the production of fuller's earth points out that it was first discovered in the United States in Quincy, Fla., in 1893. The States producing it in 1907, in order of importance, were Florida, Arkansas, Georgia, South Carolina, Massachusetts, Colorado, and Texas. A table is presented showing the production in the United States since 1902; also the imports since 1901.—*Merck's Rep.*, 1909, v. 18, pp. 147-148.

#### KINO.

Kline, C. M., reports a lot of spurious kino from eucalyptus kino detected at the port of Philadelphia.—*Proc. N. W. D. A.*, 1909, p. 186.

The committee on drug market (quoting Am. D.) reports shipments of kino containing only 50 per cent soluble matter.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 783.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 38) report examining 10 samples of kino, including both the ruby and dark opaque varieties. Those of the former class dissolved almost entirely in water, while the latter contained up to 7 per cent of insoluble matter. The loss at 100° C. ranged from 15 to 18 per cent and ash from 1.1 to 3.25 per cent. They recommend the method of Gardner and Hodgson for the estimation of tannins. Gallo-tannic acid equivalent was found to range from 71 to 80 per cent, and to be lower in the ruby varieties.

Beringer, George M., thinks that the official manipulation for tincture of kino has negated the object aimed at, the prevention of gelatinization. He asserts that the use of purified talc is unnecessary and impedes the filtration, which in fact should not be attempted at all.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 819.

#### KRAMERIA.

Fussell, M. H., in recommending the deletion of krameria from the Pharmacopœia, asserts that it has such a doubtful value as compared with the newer astringents that it is seldom used.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 204.

Capps, Pratt, McCrae, and Halsey recommend the deletion of krameria, tinctura krameriae, fluidextractum krameriae, extractum krameriae, syrupus krameriae, and trochisci krameriae from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

Rusby, H. H., thinks that since the value of krameria depends wholly on the tannin, all species of the genus should be admitted contingent on their content of tannin, and an assay process should be provided.—Midl. Drug., 1909, v. 43, p. 690. See also Pharm. Era, 1909, v. 42, p. 634.

Schamelhout, A., states that, according to the Second International Congress for the Repression of Adulteration (Paris, 1909), Peruvian rhatany root should yield a minimum of 12 per cent dry extract and not more than 5 per cent ash.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 338.

The same author points out that the extract of rhatany is moist in France and dry in Belgium.—*Ibid.*, p. 14.

A committee of the Syndicat général de la Droguerie française states that the alcoholic extract of rhatany keeps only in the dry state.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 290.

The Belgian inspectors of pharmacies report that they still sometimes find extract of kino sold as extract of rhatany.—J. d. pharm.

d'Anvers, 1909, v. 65 p. 627. See also Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 271.

The Belgian inspectors of pharmacies report that they have found fluid extract of rhatany had separated into two layers: One semi-fluid, the other very light and giving over 8 per cent dry residue on evaporation. The sediment, which by no means had the aspect of a precipitate, but which formed a sort of thick sirup, perfectly homogeneous, refused absolutely to be mixed with the supernatant liquid. It separated rapidly after agitation.—J. d. pharm. d'Anvers, 1909, v. 65, p. 627.

Schamelhout, A., remarks that the origin of this extract should be indicated, and the pharmacist who prepares or buys and accepts it should be exposed as a curiosity.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 271.

Beringer and Beringer criticize the official formula for the sirup of krameria as an extreme illustration of the use of fluid extracts; they suggest a formula, using the powdered drug, and as an alternative, a sirup prepared from the fluidglycerate.—Proc. New Jersey Pharm. Ass., 1909, pp. 90–91. See also Am. J. Pharm., Phila., 1909, v. 81, p. 314.

Cook and Ebner discuss the U. S. P. formula for sirup of krameria, and present a modified process.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1005.

Nixon, C. F., criticizes the official formula for sirup of krameria, and presents a modification in which the fluid extract is directed to be diluted with 250 cc. of water and allowed to stand for 24 hours before filtering.—Apothecary, April, 1909, v. 21, p. 18.

Schamelhout, A., notes that the French sirup of rhatany contains 2.5 gm. of soft aqueous extract per cent; the Belgian sirup contains 10 per cent of fluid extract.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 79.

Cook, E. Fullerton, thinks the formula for tincture of krameria entirely satisfactory.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1002.

#### LAC HUMANISATUM N. F.

Diehl, C. L., reports from the committee on N. F. the recommendation that humanized milk be dismissed.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1072.

#### LACTUCARIUM.

Fussell, M. H., in recommending its deletion from the Pharmacopœia, asserts that lactucarium is so inert as a soporific that it is now entirely displaced. Wood has tried it in large doses with no effect.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 204.

Rusby, H. H., asserts that lactucarium is always mouldy on the surface. If the mould has not penetrated, it may be rubbed off and the article may be fairly good, though never of course so good as when not at all mouldy.—Midl. Drug., 1909, v. 43, p. 690. See also Pharm. Era, 1909, v. 42, p. 634.

Caesar & Loretz (Geschäfts-Ber., 1909, p. 34) point out the need for thoroughly drying lactucarium so as to obviate the frequently occurring deterioration of the drug by mould.

Nixon, C. F., asserts that sirup of lactucarium is difficult to make, and outlines a modification of the official process which he believes will give better results.—Apothecary, 1909, v. 21, April, p. 18.

Beringer and Beringer assert that a pharmaceutically satisfactory sirup of lactucarium requires a perfect tincture of lactucarium, and that the latter is difficult to prepare. They outline a formula in which a mixture of glycerin and water is proposed as the solvent.—Am. J. Pharm., Phila., 1909, v. 81, pp. 314–315. See also, Proc. New Jersey Pharm. Ass., 1909, p. 91.

#### LAPPA.

Fussell, M. H., in recommending the deletion of lappa (burdock) from the Pharmacopœia asserts that it has been—indeed, is now—recommended in secondary syphilis and “scrofula.” He asks whether this is not little less than criminal.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 204.

Capps, Pratt, McCrae, and Halsey recommend the deletion of lappa and fluidextractum lappæ from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

Long, J., discusses the growing of burdock for market, and points out that it does not pay to dig the wild root, as it seldom grows to any size and the second year's growth is entirely worthless.—Meyer Bros. Drug., St. Louis, 1909, v. 30, p. 38.

Rollman, Henry, reports his experiments in raising burdock in his garden; he expects to try the Japanese variety in order to compare it with the American.—Proc. Wisconsin Pharm. Ass., 1909, p. 40.

#### LEPTANDRA.

Fussell, M. H., in recommending the deletion of leptandra from the Pharmacopœia, asserts that it is another makeshift as a biliary stimulant.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 204.

Kline, C. M., reports a sample of leptandra which was Indian black root (*Pterocaulon pycnostachyum*) and not Culver's root, the rhizome and root of *Veronica virginica*.—Proc. N. W. D. A., 1909, p. 130.



**LIMONIS CORTEX.**

Boa, Peter, reports some observations on the official preparations of orange and lemon, discusses the history of the pharmacopœial preparations, and points out that a desirable tincture of lemon can be made by using the fresh peel as directed in the Pharmacopœia, but, instead of 90 per cent alcohol as menstruum, employing about equal volumes of rectified spirit and water. Tincture made in this way he thinks has a pure, mellow, and more inviting flavor than the official tincture, and the sirup made from this tincture is clear and nice looking and retains its true flavor for a long time.—*Brit. & Col. Drug.*, 1909, v. 55, pp. 178-179. See also *Pharm. J., Lond.*, 1909, v. 28 (82), pp. 294-295.

Cook, E. Fullerton, reports that tincture of lemon peel is very satisfactory as a flavor.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1003.

Chace, E. M., as associate referee on flavoring extracts, discusses lemon extract and the determination of citral content by Hiltner's method.—*Proc. Ass. Off. Agric. Chem.*, 1909, 26th Ann. Conv., pp. 101-108 (*Bull. Bur. Chem., U. S. Dept. Agric.*, 1910, No. 132).

Scovell, M. A., reports that the samples of lemon extract examined were found to be largely a mixture of citral from lemon grass, artificially colored and containing no true lemon oil.—*Rep. Kentucky Agric. Exper. Sta.* (1908-9), 1910, p. 5.

*Table showing results obtained by analyses in the examination of extracts of lemon.*

| Reporters.                 | Number of samples— |           | References.   |
|----------------------------|--------------------|-----------|---|
|                            | Examined.          | Rejected. |   |
| Hill, Edward C.....        | 6                  | 6         | <i>Bull. Colorado Bd. Health</i> , 1909, v. 9, No. 4, pp. 2, 3.     |
| Street, John Phillips..... | 55                 | 32        | <i>Rep. Connecticut Agric. Exper. Sta.</i> (1908), 1910, p. 203.    |
| Lynch, E. L.....           | 5                  | 2         | <i>Rep. District of Columbia Health Off.</i> (1909), 1910, p. 51.   |
| Ross, E. E.....            | 28                 | 13        | <i>Bull. Florida Agric. Dept.</i> , 1909, pp. 106, 120.             |
| Bailey and Jackson.....    | 24                 | 27        | <i>Bull. Kansas Bd. Health</i> , 1909 v. 5, F. A., 20-25.           |
| Wood, Chas. D.....         | 20                 | 12        | <i>Rep. Maine Agric. Exper. Sta.</i> (1908), 1909, App. 3, pp. 6-7. |
| Halverson, J. O.....       | 39                 | 35        | <i>Rep. Food &amp; Drug. Com. Missouri</i> , 1909, pp. 19-21.       |
| Fitz-Randolph, R. B.....   | 66                 | 37        | <i>Rep. New Jersey Bd. Health</i> (1909), 1910, p. 126.             |
| Dunlap, Renick W.....      | 25                 | 13        | <i>Rep. Ohio Dairy &amp; Food Com.</i> , 1909, p. 61.               |
| Knight, Henry G.....       | 12                 | 5         | <i>Rep. Dairy, Food &amp; Oil Com., Wyoming</i> , 1909 pp. 77-112.  |

**LIMONIS SUCCUS.**

Stock, B. (*J. d. Pharm. et Chim.*, 1909, 29, 163), states that lemon juice is now prepared by centrifugating the pulp, and that the juice

so obtained is better in flavor, since none of the seeds are crushed; it is also clearer, and the residue is easier to handle than the press cake obtained by the older method.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 105.

Howes, Pitts Edwin, asserts that freshly expressed lemon juice is many times a useful adjuvant to other treatment and its special indication is a mucous membrane that is very red and a urine that is alkaline.—*J. Therap. & Dietet.*, Boston, 1908-9, v. 3, p. 216.

Gray, Robert, asserts that the medicinal value of lemon is but little known and less appreciated by the medical profession. Among many and varied uses he has found lemon juice to be antiseptic in a high degree. It aborts influenza when given in hot whisky. In strong, black coffee it cures malaria slowly, yet surely.—*Ibid.*, p. 146.

### LINIMENTA.

Dieterich and Mix in a discussion on the valuation of galenical preparations enumerate the physical properties of several widely used liniments.—*Pharm. Zentralh.*, 1909, v. 50, p. 729.

#### LINIMENTUM AMMONIÆ.

Schamelhout, A., notes that the French ammonia liniment is of 10 per cent strength, and is prepared with commercial ammonia which should contain about 20 per cent of ammonia gas; the Belgian is likewise 10 per cent, but the ammonia used contains only 17 per cent of gas.—*Bull. Soc. roy. d. pharm.*, Brux., 1909, v. 53, p. 57.

#### LINIMENTUM AMMONII IODIDI N. F.

Posey, H. G., points out that the "oil of lavender" in liniment of ammonium iodide should be oil of lavender flowers.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 988.

#### LINIMENTUM CAMPHORÆ.

Caldwell, Paul, notes that camphor liniment involves a loss. If heat be employed the camphor volatilizes. If the liniment be made in the cold time is consumed. As both camphor and time mean money he suggests using just enough commercial ether to effect a solution of the camphor.—*Bull. Pharm.*, 1909, v. 23, p. 116.

Hague, George W., recommends making camphorated oil by means of circulatory displacement.—*Meyer Bros. Drug.*, St. Louis, 1909, v. 30, p. 39.

Hommell, P. E., suggests for the U. S. P. IX a new liniment of camphor and turpentine, using 20 per cent turpentine with camphorated oil as a base.

For the camphorated oil he recommends that the U. S. P. IX include a 20 per cent camphorated oil, using peanut oil as a base.—Proc. New Jersey Pharm. Ass., 1909, p. 47.

Lythgoe, Hermann C., reports that an improvement in the quality of the camphor liniment or camphorated oil upon the market was noted this year. Only 3 of the 26 samples examined were below the required strength.—Rep. Massachusetts Bd. Health (1909), 1910, p. 475.

Street, John Phillips, reports 158 samples of camphor liniment examined, 77 of which were less than 90 per cent of U. S. P. strength; a number of analyses were made of the solvent oils.—Rep. Connecticut Agric. Exper. Sta. (1909), 1910, p. 244.

Diekman, George C., and others, report on 667 samples of camphor liniment examined, 105 of which were below standard.—Rep. New York Bd. Pharm. (1909), 1910, pp. 11, 13, 15.

The examination of drug samples in 1907 showed that of 109 samples of camphorated oil examined 24 were adulterated or not up to standard.—Pharm. J., Lond., 1909, v. 28 (82), p. 182.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 32) continue to assay every batch of camphorated oil, adopting 21 per cent w/v as a minimum standard.

See also under "Camphora."

#### LINIMENTUM CHLOROFORMI.

Schamelhout, A., notes that the French chloroform liniment contains 10 per cent of chloroform; the chloroformized oil of the [Belgian] formulary contains 25 per cent.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 57.

#### LINIMENTUM IODI N. F.

Posey, H. G., thinks that iodine liniment N. F. can be made quicker by dissolving the potassium salt in the water, then the iodine in this solution, adding the glycerin and alcohol last.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 989.

Diehl, C. L., reports from the committee on N. F. recommending the dropping or modifying of iodine liniment. It is suggested to increase the glycerin to 50 cc. and to change the directions.—*Ibid.*, p. 1072.

#### LINIMENTUM OPII COMPOSITUM N. F.

Posey, H. G., asserts that Canada liniment can be materially improved by the addition of egg albumen and the reduction of the quantity of turpentine.—*Ibid.*, p. 989.

Hilton, Samuel L., thinks there is no good reason for the use of the word Canada in Canada liniment, and this word should be

dropped as a synonym for the regular title in future revision. Further, he considers the note for the guidance of the compounder objectionable. It suggests the addition of tincture of quillaja to prevent separation; this should be added to the formula if it is to be used or the note should be eliminated.—Pharm. Era., 1909, v. 41, p. 253.

Diehl, C. L., reports from the committee on N. F. the recommendation that the note be omitted. A subcommittee, however, recommends changing the note, beginning after the word "by" on the second line to read: "Mixing 50 to 60 cc. of fresh egg-albumen (whites of two eggs) with the ammonia water; then shake this well with the oil of turpentine and add this emulsion to the other ingredients."—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1072.

#### LINIMENTUM SAPONATO-CAMPHORATUM N. F.

Posey, H. G., thinks that the "note" to camphorated soap liniment should be omitted or corrected, for the reason that it is in error, as solid opodeldoc is not directed by the Ph. Germ. to be "prepared with soap made from animal fats," but from "Medizinische Seife," a soap prepared from lard and olive oil, and official under the title *Sapo Medicatus*.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 989.

Raubenheimer, Otto, presents the formula for solid opodeldoc devised by Dunning, of Baltimore.—Chem. & Drug., 1909, v. 75, p. 517.

Diehl, C. L., reports from the committee on N. F. recommending the use of Dunning's formula given in the "Proceedings," 1907, p. 130.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1073.

Schamelhout, A., notes that in France what is designated under the name solid opodeldoc obviously has the composition of the product indicated in the Ph. Belg. II. In Belgium [Ph. Belg. III] it is actually the liquid preparation which is alone officinal.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 7.

#### LINIMENTUM SAPONIS.

Posey, H. G., asserts that it is not always possible to achieve good results in the making of soap liniment even when a soap answering all of the U. S. P. requirements is being used. He recommends making the soap directly from olive oil in the process of making the liniment.—Western Druggist, Chicago, 1909, v. 31, p. 10.

Havenhill, L. D., thinks that the trouble experienced in making soap liniment, as well as in following some of the complicated processes of the N. F., may be obviated by placing the ingredients in the proper proportions in a calibrated bottle and shaking the preparation, to be filtered after from 12 to 24 hours.—Proc. Kansas Pharm. Ass., 1909, p. 64.

Diekman, George C., and others, report 199 samples of soap liniment examined, 3 of which were below standard; 2 contained methyl alcohol.—Rep. New York Bd. Pharm. (1909), 1910, pp. 11, 12, 15.

The Belgian inspectors of pharmacies report that liquid opodeldoc has been found to have a too weak density, too little residue, and with methyl alcohol used in its preparation.—J. d. pharm. d'Anvers, 1909, v. 65, p. 590. See also Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 262.

#### LINIMENTUM SAPONIS MOLLIS.

Capps, Pratt, McCrae, and Halsey recommend the deletion from the U. S. P. of linimentum saponis mollis, and state that this causes confusion, as it is not intended to be used as an embrocation.—J. An. M. Ass., 1909, v. 53, p. 792.

Caldwell, Paul, thinks that liniment of soft soap is not intended as an embrocation. It is frequently confused with the official soap liniment and might well be called a spirit of soap.—Bull. Pharm., 1909, v. 23, p. 116.

Jung, Ed., presents a formula for the direct production of liniment of soft soap.—Apoth. Ztg., Berl., 1909, v. 24, p. 155.

Richter, Ernst, outlines a method for preparing the liniment of soft soap without heat, directly from olive oil.—*Ibid.*, p. 327.

Diekman, George C., reports 430 samples of liniment of soft soap examined by the eastern branch, 7 of which were below standard.—Rep. New York Bd. Pharm. (1909), 1910, p. 11.

#### LINIMENTUM TEREBINTHINÆ ACETICUM N. F.

Gervais, William, points out that this preparation, known variously as White, Stoke's, and St. John Long's liniment, separates on standing, but at once becomes homogeneous upon shaking.—N. A. R. D. Notes, 1909, v. 9, p. 384.

Diehl, C. L., reports from the committee on N. F. the recommendation to change the formula for acetic turpentine liniment. The modified formula is presented.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1072.

#### LINUM.

Peters, W., gives the moisture content of linseed as 8.32 per cent; the ash content of the air-dry drug as 7 per cent; the ash content of the dried drug as 7.63 per cent; and the color of the resulting ash as dark gray.—Apoth. Ztg., Berl., 1909, v. 24, p. 538.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 41) report on a consignment of Canadian linseed yielding 38 per cent of oil to petroleum ether.

Collin, Eng., discusses the detection of linseed oil cake, and describes and illustrates the anatomical elements found.—Ann. d. chim. analyt., Par., 1909, v. 14, pp. 256–261. See also J. d. pharm. et d. chim., Par., 1909, v. 29, pp. 369–376.

The fourteenth Annual Report of the Local Government Board for Scotland reports 12 samples of linseed examined. One was found to be of doubtful purity.—Chem. & Drug., Lond., 1909, v. 75, pp. 17–18.

The Belgian inspectors of pharmacies report that certain pharmacists continue to sell linseed cake meal, pretending that their clients prefer it, or that the industrial societies do not recognize any other.—J. d. pharm. d'Anvers, 1909, v. 54, p. 551.

References on the production of linseed will be found in Exp. Sta. Rec.

#### LIQUORES.

Dieterich and Mix, in a discussion on the valuation of galenical preparations, enumerate the physical and chemical properties of the several Ph. Germ. IV solutions.—Pharm. Zentralh., 1909, v. 50, pp. 729–730.

#### LIQUOR ACIDI ARSENI.

Havenhill, L. D., reports difficulty in dissolving the arsenic trioxide after the official method, and suggests a modification.—Proc. Kansas Pharm. Ass., 1909, p. 63.

#### LIQUOR ALUMINI ACETATIS N. F.

Raubenheimer, Otto, reviews the history of Burow's solution, calls attention to the confusion existing regarding it, and concludes with the suggestion that the next edition of the National Formulary should contain a formula for this preparation which he believes to be a simpler and more permanent and more effective preparation than the official Liquor Alumini Acetatis.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 1036–1043.

Grüning, W., discusses the production of a stable solution of aluminum acetate, points out that Burow's solution, though admittedly more stable than the official solution of aluminum acetate, contains a variety of contaminations more or less objectionable, and outlines a method for preparing a stable solution of aluminum acetate, by precipitating the residual calcium sulphate remaining in the solution with barium acetate.—Pharm. Zentralh., 1909, v. 50, pp. 395–396.

Diehl, C. L., reports from the committee on N. F. the recommendation that the note be deleted. A subcommittee recommends modifying or dropping the formula.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1073.

Gecker, E., questions the advisability of adding boric acid to the official (undiluted) solution of aluminum acetate, which has been frequently recommended for its preservation.—*Pharm. Ztg.*, 1909, v. 54, p. 86.

The Belgian inspectors of pharmacies report that Burow's liquor is not always of the desired concentration and is sometimes found gelatinized. On the other hand they frequently find it prepared with alum and acetate of lead, filtered or not.—*J. d. pharm., d'Anvers*, 1909, v. 65, p. 583.

Schamelhout, A., states that if prepared with alum, sodium sulphate and lead acetate, this preparation does not gelatinize. The commercial product often precipitates with sulphuric acid; the test should always be made when purchasing it.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 233.

#### LIQUOR ALUMINI ACETICO-TARTRATIS N. F.

Diehl, C. L., reports from the committee on N. F. the recommendation to delete the note. The use of an equivalent amount of monohydrated sodium carbonate in place of  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$  is also recommended.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1073.

#### LIQUOR AMMONII ACETATIS.

Schamelhout, A., notes that the Belgian product should have a sp. gr. 1.032 to 1.034, corresponding to a content of about 15 per cent ammonium acetate; it may have a very weak acid reaction. The sp. gr. of the French product is 1.036.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 6.

The Belgian inspectors of pharmacies report solution of ammonium acetate as too weak, containing empyreumatic matters having an acid or a strongly alkaline reaction.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 590.

Schamelhout, A., remarks that when it is possible easily to procure ammonia of good quality this product will likewise be of good quality. The Ph. Belg. tolerates a slightly acid reaction. In France this preparation should have a slightly alkaline reaction.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 262.

#### LIQUOR AMMONII ACETATIS CONCENTRATUS N. F.

Posey, H. G., thinks that concentrated solution of ammonium acetate should find no place in the National Formulary, for besides being an unstable compound it conflicts with the pharmacopœial directions "that the preparation should be made fresh."—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 988.

Diehl, C. L., reports from the committee on N. F. the recommendation that concentrated solution of ammonium acetate be deleted.—*Ibid.*, p. 1073.

#### LIQUOR AMMONII CITRATIS FORTIOR N. F.

Posey, H. G., thinks that stronger solution of ammonium citrate should be dropped because it is an unstable compound; also for the reason that the appended note is entirely incorrect, as reference to the British Pharmacopœia will show.—*Ibid.*, p. 988.

Diehl, C. L., reports from the committee on N. F. the recommendation that stronger solution of ammonium citrate be modified or dropped. It is also recommended that the strength be made the same as the Ph. Brit. by changing the amount of citric acid to 125 gm.; then omit the words "fortior" and "stronger" in the titles. The last paragraph should be changed to read "4.0 cc. contain about 0.57 gm. of ammonium citrate."—*Ibid.*, p. 1073.

#### LIQUOR ANTIGERMINARIUS N. F.

Posey, H. G., asserts that "Germicide" is not near so good a germicide as is Liquor Antisepticus U. S. P., and would not be missed.—*Ibid.*, p. 988.

Diehl, C. L., reports from the committee on N. F. recommending the deletion of germicide; it is not used. If retained the title should be changed to "Spiritus Thymolis Compositus, Compound Spirit of Thymol."—*Ibid.*, p. 1073.

#### LIQUOR ANTISEPTICUS.

Fussell, M. H., thinks that antiseptic solution should be relegated to the National Formulary.—Tr. Am. M. Ass., Sec. Pharm. & Therap. 1909, p. 205.

Hallberg, C. S. N., thinks that combinations of drugs, such as Liquor Antisepticus, should be relegated to the National Formulary.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 28.

Prinz, Hermann, recommends that liquor antisepticus be omitted from future editions of the Pharmacopœia, and that an improved preparation should be added to the N. F. where it rightly belongs. He objects to the taste of the present preparation.—J. Am. M. Ass., 1909, v. 53, p. 796.

Havenhill, L. D., suggests a modification of the official method for the preparation of antiseptic solution. The product is perhaps not absolutely identical with the official product, but it can differ from it but slightly and this difference is less than the difference between two products prepared by the official manipulation by different operators.—Proc. Kansas Pharm. Ass., 1909, p. 63.



## LIQUOR ANTISEPTICUS ALKALINUS N. F.

Bruder, Otto E., thinks the alkaline antiseptic solution could be greatly improved in appearance and made more uniform if the tincture of cudbear were replaced by an equivalent amount of powdered cudbear.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 966.

Cook, E. Fullerton, reports the suggestion that alkaline antiseptic solution is improved by using 16 gm. of sodium bicarbonate in place of the 32 gm. of potassium bicarbonate; also the suggestion to reduce the sodium benzoate to 8 gm. and the glycerin to 125 cc. per 1,000 cc. For coloring, cudbear should be used. Another contributor suggests that, in place of ordering the small quantities of oils and aromatics, a stock, alcoholic, solution should be made and the necessary quantity of this directed in the formula. This would overcome much of the variation in odor and taste.—*Ibid.*, p. 961.

Posey, H. G., thinks that the proportion of glycerin in alkaline antiseptic should be reduced to 125 cc.—*Ibid.*, p. 988.

Wolf, J. Carlton, objects to the sweetness of alkaline antiseptic solution, and points out that it can be overcome by reducing the glycerin from 250 to 100 cc. and the alcohol from 60 to 50 cc. in each 1,000 cc.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 25.

Lascoff, J. Leon, thinks that the present liquor antisepticus N. F. does not give satisfactory results and is rarely of uniform color. To improve this condition he thinks it advisable to use powdered cudbear instead of the tincture. He also suggests changing the title to "Liquor Antisepticus Ruber," and presents an improved formula.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 1137-1138.

Hilton, Samuel L., thinks that the formula for alkaline antiseptic solution should be so adjusted that the drug cudbear should be used instead of the tincture of cudbear, and points out that, with the menstruum used for making the tincture, it is not possible to extract all of the coloring matter.—Pharm. Era, 1909, v. 41, p. 254.

Pelikan presents a modified formula for alkaline antiseptic, which, he believes, is superior to the formula now contained in the National Formulary, in that it is free from any nauseous or too sweetish taste. The formula contains sodium salicylate and the quantities of sodium borate and sodium benzoate are reversed.—N. A. R. D. Notes., 1909, v. 9, p. 384.

Diehl, C. L., reports from the committee on N. F. recommending the change in quantity of the sodium benzoate to 8 gm. and sodium borate to 32 gm. The use of powdered cudbear, 2 gm. instead of the tincture; and the addition of 0.5 gm. of oil of pinus pumilio is also recommended.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1074.

Arny, H. V., reports observations on a sample of antiseptic solution N. F., which, on keeping, became almost colorless, the color

being restored on exposure to air.—*Am. Druggist*, N. Y., 1909, v. 55, p. 173. See also *Proc. Ohio Pharm. Ass.*, 1909, p. 40.

Hatch, K. E. (*Dental Digest*), in a discussion of disinfection of the mouth, points out the desirability for using neutral or slightly alkaline solutions as mouth washes.—*Dental Cosmos*, Philadelphia, 1909, v. 51, p. 632.

#### LIQUOR AURI ET ARSENI BROMIDI N. F.

Diehl, C. L., reports from the committee on N. F. recommending the addition of the following: "Caution! If a fume chamber is not accessible, the disagreeable and injurious effects of the bromine upon the exposed mucous membrane of the operator may be largely prevented by placing around him several shallow vessels containing a weak solution of ammonia." The deletion of the note is also recommended.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1074.

Vanderkleed, C. E., suggests that the committee on standards for nonofficial drugs and chemical products fix a tentative standard for gold tribromide. One house offers what is claimed to be a crystalline salt of the composition  $\text{AuBr}_3$ ; another claims that its amorphous product has the composition  $\text{AuBr}_3 \cdot \text{HBr} \cdot 5\text{H}_2\text{O}$ , and states that some products on the market contain also  $\text{AuBr}_3$ .—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 124.

#### LIQUOR BROMI N. F.

Diehl, C. L., reports from the committee on N. F. recommending the addition of the following: "Caution! If a fume chamber is not accessible, the disagreeable and injurious effects of the bromine upon the exposed mucous membrane of the operator may be largely prevented by placing around him several shallow vessels containing a weak solution of ammonia."—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1074.

#### LIQUOR CALCIS.

Nitardy, F. W., describes and illustrates a double siphon bottle for lime water, with an attachment for removing the carbon dioxide from the air entering the lime water bottles, the object of the container being to prevent deterioration.—*Rocky Mt. Drug.*, 1909, v. 23, Jan., p. 33.

An abstract calls attention to the paper by Moody and Leyson (*J. Chem. Soc.*, 1908, Nov., p. 1767) on the solubility of lime in water.—*Drug Topics*, New York, 1909, v. 24, p. 72. See also *Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 259.

Farley, Ernest W., discusses the care of lime water from a practical and theoretical standpoint, and describes and illustrates a lime water container.—*Merck's Rep.*, 1909, v. 18, pp. 114–115.

An unsigned article points out that it is necessary to remember that the lime water is a saturated solution of calcium hydroxide in distilled water, and asserts that waste is a negligible quantity as the lime is so cheap and the readiness in obtaining a saturated solution with the use of a considerable excess is so apparent.—*Pharm. J.*, Lond., 1909, v. 28 (82), p. 550.

Dunlap, Renick W., suggests that lime water be kept in glass-stoppered bottles of not over one-half gallon capacity, keeping but one package on the dispensing shelf and the remainder in a cool place. The addition of an exact quantity of lime, as suggested by the U. S. Dispensatory, is not sufficient to prevent deterioration unless the product is carefully handled.—*Rep. Ohio Dairy & Food Com.* (1909), 1910, p. 42. See also *Midl. Drug.*, 1909, v. 43, p. 355.

*Table showing some of the analytical results reported for lime water.*

| Reporters.                 | Number of samples— |           | References.  |
|----------------------------|--------------------|-----------|--|
|                            | Examined.          | Rejected. |  |
| Hill, Edward C.....        | 3                  | 1         | Bull. Colorado Bd Health 1909 v 9 No. 1 p. 2             |
| Street, John Phillips..... | 41                 | 11        | Rep. Connecticut Agric. Exper. Sta (1909), 1910 p. 270.  |
| Sayre and Zieff.....       | 8                  | 3         | Bull. Kansas Bd. Health, 1909, v. 5, D. A. 16-23.        |
| Woods, Charles D.....      | 39                 | 11        | Rep. Maine Agric. Exper. Sta. (1909). 1910, App. p. 183. |
| Lythgoe, Hermann C.....    | 1                  | 1         | Rep. Massachusetts Bd. Health (1909), 1910, p. 475.      |
| Fitz-Randolph, R. B.....   | 61                 | 26        | Rep. New Jersey Bd Health (1909). 1910, p. 195.          |
| Dunlap, Renick W.....      | 1                  | 1         | Rep. Ohio Dairy & Food Com. 1909 p. 60                   |

Bachman, Gustave, reports that in the lime water examined, he found 0.109 per cent minimum, and 0.143 per cent maximum.—*Proc. Minnesota Pharm. Ass.*, 1909, p. 70.

The examination of drug samples in 1907 showed that of 51 samples of lime water examined 6 were adulterated or not up to standard.—*Pharm. J.*, Lond., 1909, v. 28 (82), p. 182.

The Belgian inspectors of pharmacies report lime water too poor in calcic hydrate, when an excess of lime is not left in the bottom of the bottle to compensate for precipitation by the carbonic acid of the air.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 623.

Schamelhout, A., cautions pharmacists to be very careful about this medicament so important to infants. It is very unstable and the physician should never prescribe large quantities at any one time.—*Bull. Soc. roy. d. pharm.*, Brux., 1909, v. 53, p. 264.

#### LIQUOR CALCEI SULPHURATÆ N. F.

Diehl, C. L., reports from the committee on N. F. recommending the use of the title "Calcium hydroxide, freshly prepared" instead

of "Lime, freshly slaked" in the formula, and the substitution for the first sentence of the following: "Mix the freshly prepared calcium hydroxide with the sulphur and to these gradually add 1,750 cc. of boiling water."—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1074.

#### LIQUOR CHLORI COMPOSITUS.

Mittelbach, William, suggests directions for the making of compound solution of chlorine to replace those at present official.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 818.

Eberle, E. G., thinks the official compound solution of chlorine will not come up to the tests laid down. A strong solution deteriorates faster proportionately than a weak solution. He suggests a weaker preparation. To make one of pharmacopœial strength requires increased quantities of both potassium chlorate and hydrochloric acid, in his experience double these quantities.—*Ibid.*, p. 818.

Sperry, Elmer A., reports observations on the manufacture of anhydrous chlorine from moist dilute gases, and its industrial application in chlorine detinning.—J. Ind. Eng. Chem., 1909, v. 1, pp. 511-518.

Johnson and McIntosh report observations on liquid chlorine, and the methods of liquefying chlorine gas.—J. Am. Chem. Soc., 1909, v. 31, pp. 1138-1144.

#### LIQUOR CRESOLIS COMPOSITUS.

Cowley, R. C., discusses the B. P. C. formula for *sapo cresolis*, and outlines a modified formula in which he uses olive oil, caustic potash, alcohol, water, and cresylic acid.—Pharm. J., Lond., 1909, v. 29 (83), p. 202.

An editorial (Rocky Mt. Drug., 1909, v. 23, Jan., pp. 7-8) points out that while this preparation has achieved marked popularity, through the work of the U. S. P. propaganda, it is strikingly deficient and should be improved. The distinguished revisers use about 5 times the space necessary to give a formula that is useless except to the gentleman who wrote it and those of us who happen to know his mind. The U. S. P. formula in shorthand is as follows: Take of *cresol* 500 cc.; *sapo mollis* 612 gm.; mix, by aid of gentle heat, in water bath.

Richter, Ernst, discusses the chemical examination of cresol soap solution according to the official method.—Apoth. Ztg., Berl., 1909, v. 24, pp. 170-171.

Spalteholz, W., discusses the valuation of cresol soap solutions by means of glacial acetic acid.—Chem. Ztg., Cöthen, 1909, v. 33, pp. 181-182. See also Apoth. Ztg., Berl., 1909, v. 24, p. 171.

Schmatolla, Otto, comments on the article by Spalteholz and points out that the use of acetic acid is empirical and does not lead

to accurate results.—Chem. Ztg., Cöthen, 1909, v. 33, p. 284. See also Apoth. Ztg., Berl., 1909, v. 24, p. 261; and Pharm. Ztg., Berl., 1909, v. 54, p. 261.

Rapp, R., presents conclusions based on a comprehensive study of cresol preparations, and outlines a method for the valuation of cresol soap solution.—Apoth. Ztg., Berl., 1909, v. 24, pp. 641–642.

Deiter, I. (Veröff. a. d. Gebiet. des Militär-Sanitätswesens 1909, III., Heft 41, S. 38), presents a modified method for the rapid valuation of cresol soap solution.—Chem. Repert., Cöthen, 1909, v. 33, p. 398.

An unsigned article quotes Deiter who suggests the determination of the specific gravity, the alkalinity, the hydrocarbon content and the determination of the residue remaining on the evaporation of cresol soap in the method outlined.—Pharm. Ztg. Berl., 1909, v. 54, pp. 506–507.

Warnecke, G., discusses the examination of cresol soap solutions.—Apoth. Ztg., Berl., 1909, v. 24, p. 650.

Keller discusses the testing of cresol soap solutions, and outlines methods for determining the several important constituents.—*Ibid.*, p. 849.

Cederberg, Hilmer, discusses the Ph. Svec. IX compound solution of cresol and its several components.—Svensk. farm. Tidskr., 1909, v. 13, pp. 4–6.

Piltz (Münch. med. Woch., 1908, No. 18) reports a case of grave intoxication following the intra-uterine injection of lysol.—Nouv. remèdes, Par., 1909, v. 25, p. 94.

Scharpff (Mitt. a. d. Hamb. Staatskrankenanst., 1909, ix, 155–156) presents a contribution to our knowledge of lysol and creolin poisoning.—Index Medicus, 1909, v. 7, p. 861.

Seifert, Otto, reports that pure lysol applied to the skin has produced sharp burning pains followed by oedema and the formation of blisters.—Apoth. Ztg., Berl., 1909, v. 24, p. 46.

Additional references on the toxicology and the use of preparations containing cresol will be found in Index Medicus and J. Am. M. As.

#### LIQUOR ELECTROPOEICUS N. F.

Diehl, C. L., reports from the committee on N. F. recommending that liquor electropoeicus N. F. be deleted.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1074.

#### LIQUOR EXTRACTI GLYCYRRHIZÆ N. F.

Posey, H. G., wonders what good purpose solution of extract of glycyrrhiza was intended for, or rather what advantage it possesses over pure extract of licorice, or fluid extract of licorice.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 989.

Diehl, C. L., reports from the committee on N. F. recommending that solution of extract of glycyrrhiza be eliminated from the N. F.—*Ibid.*, p. 1074.

LIQUOR FERRI ALBUMINATI N. F.

Schmatolla, Otto, reviews the history of solution of albuminate of iron, discusses the several formulas that have been offered and makes some suggestions regarding the technique to be followed.—*Pharm. Ztg.*, Berl., 1909, v. 54, pp. 96-97.

Posey, H. G., asserts that neither the present formula nor the reconstructed formula (*Bulletin A. Ph. A.*, v. 2, p. 157) for solution of albuminate of iron yields a satisfactory preparation, and recommends that the committee look into the Harrison formula, given in full in a paper read before the Chicago branch, A. Ph. A. (see *Bulletin A. Ph. A.*, May, 1908) as it gives entire satisfaction, its only difficulty being the time and technique required.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 989.

Cook, E. Fullerton, reports a formula suggested by W. G. Nebig for solution of albuminate of iron.—*Ibid.*, p. 961.

Dunn, John A., presents a formula for making solution of iron albuminate N. F.—*Ibid.*, p. 958.

Cook, E. Fullerton, reports that gelatinization occurs in a short time in solution of albuminate of iron.—*Ibid.*, p. 961.

Sayre and Coburn found difficulty in dissolving the iron albuminate; better success was obtained by working faster and adding a larger quantity of NaOH.—*Proc. Kansas Pharm. Ass.*, 1909, p. 89.

Diehl, C. L., reports from the committee on N. F. recommending the adoption of Squibb's formula as given in the A. Ph. A. Bulletin (1908) p. 280, but recommends fresh egg albumen instead of dried, using 7.5 times the amount.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1074.

LIQUOR FERRI ET AMMONII ACETATIS.

Eberle, E. G., thinks that the physical properties of solution of iron and ammonium acetate should be described in the U. S. P. so as to facilitate its identification and control.—*Ibid.*, p. 818.

Robertson, C. S., outlines a formula for solution of iron and ammonium acetate for which he uses 3 stock solutions: A solution of ammonium carbonate in water, solution of acetic acid in water, and a solution of tincture of ferric chloride with glycerin and aromatic elixir in water.—*Pacific Pharmacist*, 1909-10, v. 3, p. 14.

Dunning, H. A. B., reports a series of interesting and suggestive experiments for Basham's mixture, and makes suggestions for improving the product now official. He concludes that the 1890 formula for Basham's mixture is a most excellent one, pharmaceutically, and far superior to that included in the U. S. P. VIII. The latter for-

mula can be materially improved by increasing the quantity of glycerin and reducing the amount of ammonium acetate solution.—Bull. Pharm., 1909, v. 23, pp. 157–158. See also Bull. Am. Pharm. Ass., 1909, v. 4, p. 26.

Warner, F. D., thinks that the trouble with the U. S. P. formula for Basham's mixture is not with the formula but with the materials used. He outlines a method of procedure which he believes gives more satisfactory results than the product in the U. S. P.—Western Druggist, Chicago, 1909, v. 31, p. 365.

Posey, H. G., indorses the frequently made recommendation to omit tincture of ferric chloride and add it when dispensing.—*Ibid.*, p. 10.

#### LIQUOR FERRI CHLORIDI.

Dunn, John A., thinks the U. S. P. VIII test for oxychloride of iron is not safe to follow. When the loss of acid which occurs in the manufacture of this preparation is made up so that the solution stands this test, it will not make a tincture without precipitating a basic chloride of iron. He, therefore, continues to make up this loss of acid to the point when the solution stands the U. S. P. 1890 test for oxychloride.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 949.

For additional references see under "Ferri chloridum."

#### LIQUOR FERRI HYPOPHOSPHITIS N. F.

Diehl, C. L., reports from the committee on N. F. recommending the omission of the first formula.—*Ibid.*, p. 1074.

#### LIQUOR FERRI IODIDI N. F.

Posey, H. G., asserts that it is an open question as to whether or not sirup of ferrous iodide should be prepared extemporaneously, owing to the oxidation of solution of ferrous iodide unless perfectly preserved, but as there are many who do use a similar preparation made by the larger manufacturing houses he advocates continuing this formula. An increase in the amount of acid should be made, however, in order to reconcile the resulting sirup to that of the U. S. P.—*Ibid.*, p. 989.

Diehl, C. L., reports from the committee on N. F. the recommendation that the first sentence of the note be changed to read: "This solution contains about 81 gm. of ferrous iodide in 100 cc. or 49.65 per cent."—*Ibid.*, p. 1074.

Sayre and Coburn report that if in preparing solution of ferrous iodide the direction to drive out all the acid by heat is followed, the process leaves only a crystalline residue; when the preparation was finished iodine was liberated, iron wire was introduced which

restored the color, but upon standing iodine was again liberated.—*Proc. Kansas Pharm. Ass.*, 1909, p. 89.

#### LIQUOR FERRI OXYCHLORIDI N. F.

Posey, H. G., thinks that solution of ferric oxychloride should be dropped.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 989.

Dunn, John A., outlines a formula and method for preparing solution of ferric oxychloride.—*Ibid.*, p. 957.

Diehl, C. L., reports from the committee on N. F. recommending a modified formula suggested by E. H. Squibb. ("Bulletin," 1909, 281.) The formula is presented.—*Ibid.*, p. 1075.

#### LIQUOR FERRI OXYSULPHATIS N. F.

Posey, H. G., thinks that solution of oxysulphate of iron should be dropped from the National Formulary.—*Ibid.*, p. 989.

#### LIQUOR FERRI PEPTONATI N. F.

Posey, H. G., thinks that solution of peptonate of iron and its combination with manganese should be given not only the earnest consideration of the committee, but the closest possible attention. Both formulas are notoriously defective.—*Ibid.*, p. 990.

Sayre and Coburn report that peptonate of iron would not dissolve even after adding an excessive amount of NaOH and allowing the solution to stand 48 hours.—*Proc. Kansas Pharm. Ass.*, 1909, p. 89.

Dunn, John A., presents a formula for making solution of iron peptonate N. F., using dry peptone and omitting the washing.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 958.

Amos, W. S., finds that 25 per cent ferric peptonate is not satisfactory for the making of the solution of peptonate of iron.—*Proc. Kansas Pharm. Ass.*, 1909, p. 66.

#### LIQUOR FERRI PEPTONATI CUM MANGANO N. F.

Posey, H. G., asserts that the formula for solution of peptonate of iron with manganese is notoriously defective.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 989.

Hilton, Samuel L., asserts that solution of peptonate of iron and manganese is most unsatisfactory, for the finished product is offensive in odor, unpleasant in taste, and does not represent what is claimed. The formula and process of H. A. B. Dunning, as published in the *Proc. Am. Pharm. Ass.*, 1905, and frequently spoken of as the Harrison formula, makes a better preparation without any of the above objections. If the formula can not be made satisfactory it had better be eliminated. He has found most of the peptonate of



iron on the market unsatisfactory and not perfectly soluble.—Pharm. Era, 1909, v. 41, p. 254.

Bruder, O. E., asserts that solution of peptonate of iron and manganese could be greatly improved and made fairly perfect by following the modifications suggested by Harrison and Thos. D. McElhenie.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 232. See also Proc. Am. Pharm. Ass., 1909, v. 57, p. 966.

Dunn, John A., outlines a formula for solution of peptonate of iron with manganese.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 958.

Cook, E. Fullerton, reports Wm. L. Cliffe as saying of solution of peptonate of iron with manganese that this preparation should be prepared in the same manner as the solution of peptonate of iron from a suitable solution of manganese and ferric chloride. In following this process a caution should be inserted in regard to the preservation of the precipitated magma, when operating in warm weather. Subsidence and decantation with weak chloroform water has proved satisfactory to us. In place of the preliminary peptonizing of egg albumin, as has been suggested, a prepared dry peptone can be ordered. This is on the market of excellent quality and low price.—*Ibid.*, p. 962.

Rice, Herbert E., thinks the difficulty with the solution of peptonate of iron with manganese N. F. may be overcome by the proper chemicals. The ordinary peptonate of iron as found in the market contains 5 per cent of ferric acid and an amount of peptone that renders it unfit for use in this solution. He suggests a formula.—Proc. New Hampshire Pharm. Ass., 1909, p. 70.

#### LIQUOR FERRI TERSULPHATIS.

Arny, H. V., reports examining one sample of solution of ferric sulphate, which contained 23.5 per cent ferric sulphate.—Proc. Ohio Pharm. Ass., 1909, p. 66.

#### LIQUOR FORMALDEHYDI.

Delépine, Marcel, discusses the principle physico-chemical properties of formic aldehyde, gaseous, liquid, solid and dissolved.—Bull. sc. pharmacol., Par., 1909, v. 16, pp. 146-160.

Schamelhout, A., notes that the officinal solution of formaldehyde contains 35 per cent of formic aldehyde in France, and about 30 per cent in Belgium.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 14.

Beal, Geo. D., presents a paper on formaldehyde testing by the pharmaceutical chemist, in which he reviews several methods. He thinks the oxidation reactions the most reliable, they are as delicate as the condensation reactions, and fewer bodies interfere. He has had no experience with the pharmacopœial test.—Proc. Ohio Pharm. Ass., 1909, pp. 41-44.

Wetterstroem, Theo. D., states that he never lets an opportunity go by without knocking the pharmacopœial test. The red color reaction depends on the presence of some phenolic body in the salicylic acid, the existence of which in this reagent is forbidden in the text of the Pharmacopœia. Every time we have a prosecution we must go through this test and very often it does not work.—*Ibid.*, p. 45.

LaWall, Charles H., reports a series of experiments to determine the possibility of formaldehyde being produced by boiling solutions of cane sugar. He concludes that cane sugar solutions do not develop formaldehyde when boiled under ordinary conditions, but that furfuraldehyde is produced, which reacts in such a manner with the Hehner test as to deceive the analyst who relies upon it alone, without confirmation by the Rimini test.—*Am. J. Pharm.*, Phila., 1909, v. 81, pp. 394-396.

Cirelli, Domenico, discusses the determination of formic aldehyde.—*Arch. farmacol. sper.*, 1909, v. 8, pp. 581-593.

The Belgian inspectors of pharmacies report that they seldom find formol polymerized by reason of too great concentration, the solutions are too weak.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 587.

Schamelhout, A., remarks that the strength, about 30 per cent, required by the Ph. Belg. is nevertheless too high.—*Bull. Soc. roy. d. pharm.*, Brux., 1909, v. 53, p. 258.

Dorset, M., discusses the available forms of formaldehyde, and the uses of liquid formaldehyde and gaseous formaldehyde.—*Spatula*, 1908-9, v. 15, p. 230.

Kalähne and Strunk (*Ztschr. f. Hyg.* v. 64, pp. 113-142) discuss disinfection with formaldehyde and potassium permanganate, the yield of gaseous formaldehyde and the practical importance. Their results show that the paraform-permanganate procedure is preferable to the use of autan or of formalin.—*Chem. Abstr. Am. Chem. Soc.*, 1910, v. 4, p. 337.

Vreven, S., describes a respirator for the protection of disinfectors from the irritation produced by the vapors of formaldehyde.—*Ann. d. pharm.*, Louvain, 1909, v. 15, pp. 49-51.

Fleissig, Paul, discusses the administration and use of formaldehyde and presents in the form of a table a review of the several uses, with reference to literature and most desirable method for prescribing this substance.—*Therap. Monatsh.*, Berl., 1909, v. 23, pp. 113-117; 167-173.

Prinz, Hermann, asserts that trioxymethylen, a polymerized form of formaldehyde gas, has been employed in operative dentistry with so many gratifying results that it deserves to be recommended for admission to the U. S. P.—*J. Am. M. Ass.*, 1909, v. 53, p. 796.

Coste (Arch. méd. nav. no. 8) describes severe and lasting toxic symptoms resulting from his handling in the museum fish preserved in 5 per cent formol.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 24.

Humpstone and Lintz report a case of formalin poisoning, from rectal injection by mistake, with a review of the four cases of formalin poisoning reported in the literature.—J. Am. M. Ass., 1909, v. 52, p. 380.

Bower, A. J., reports a case of poisoning by formaldehyde in a woman, age 20, who had swallowed about half an ounce of formalin. An interesting feature of the case was the slight amount of kidney disturbance.—*Ibid.*, p. 1106.

An editorial (Lancet, 1909, v. 177, p. 731) calls attention to the rarity of cases of formaldehyde poisoning, and reviews the cases reported by Levison (J. A. M. Ass., June 4, 1904, p. 1492), Bower (*ibid.*, Apr. 3, 1909), and Gerlach (Münch. Med. Wchnschr., Sept. 9, 1902, p. 109).

An editorial (Lancet, 1909, v. 176, p. 411) calls attention to the work of the Bureau of Chemistry, U. S. Department of Agriculture, on the effect of formaldehyde upon digestion and health.

An editorial (Chem. & Drug., 1909, v. 75, p. 343) calls attention to a report issued by the Local Government Board on the use of formalhyde as a preservative of meat. See also editorial (Lancet, 1909, v. 177, p. 563).

Sergeant, F. Pilkington, asserts that formalin is used particularly as a fungicide for the sterilization of the seeds of cereals, potato tubers, etc. An aqueous solution containing about 1.5 per cent formaldehyde is the usual medium. It is also used for the destruction of mildew on roses and indoor plants generally.—Pharm. J., Lond., 1909, v. 29 (83), p. 236. Also Drug Topics, New York, 1909, v. 24, p. 343.

For additional references on the toxicology and uses, see Index Medicus and J. Am. M. Ass.

#### LIQUOR HYDRARGYRI NITRATIS.

Mittelbach, William, recommends the use of yellow oxide in place of the red in the formula for solution of mercuric nitrate.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 819.

Eberle, E. G., thinks that in recommending the use of yellow mercuric oxide in place of the red, William Mittelbach has possibly overlooked the item of cost.—*Ibid.*, p. 819.

#### LIQUOR HYPOPHOSPHITUM N. F.

Posey, H. G., thinks that solution of hypophosphites is a very good preparation, but as a demand exists for a solution of hypophosphites

with creosote, a formula should be included for the same, containing 4 minims of beechwood creosote to each fluid ounce, it being hardly possible to effect solution with quantities greater than that.—*Ibid.*, p. 990.

Dunn, John A., asserts that the darkening, which always occurs in compound solution of hypophosphites N. F., may be overcome by using ferrous hypophosphite instead of ferric. He outlines a method for preparing ferrous hypophosphite.—*Ibid.*, p. 959.

Cook, E. Fullerton, points out that compound solution of hypophosphites develops mold growths very quickly and that this should be overcome in some way. A contributor says that this preparation will not keep indefinitely, as it is peculiarly liable to vegetable growths of a rosy, mucus-like character. A long experience with a similar preparation has shown that the addition of 10 per cent of alcohol is the best preservative, yielding, with the present formula, a preparation that is entirely permanent and satisfactory.—*Ibid.*, p. 961.

Diehl, C. L., reports from the committee on N. F. recommending the increase of glycerin to 350 cc.—*Ibid.*, p. 1075.

Dunning, H. A. B., favors the addition, to prevent fungous growth, of a small percentage (10 per cent) of alcohol, rather than to increase the glycerin.—*Ibid.*, 1075.

#### LIQUOR IODI CARBOLATUS N. F.

Diehl, C. L., reports from the committee on N. F. the recommendation that the nomenclature be corrected to "Liquor Iodi Pherolatus."—*Ibid.*, p. 1075.

#### LIQUOR MAGNESII BROMIDI N. F.

Diehl, C. L., reports from the committee on N. F., recommending the deletion of solution of magnesium bromide.—*Ibid.*, p. 1075.

#### LIQUOR MAGNESII CITRATIS.

Touhy, James L., outlines a method for making solution of magnesium citrate extemporaneously by means of heat.—*Bull. Pharm.*, 1909, v. 23, p. 254.

Burge, J. O., outlines his method for making solution of magnesium citrate extemporaneously.—*Ibid.*, p. 343.

Daniel, R. P., commenting on the several formulas for making solution of magnesium citrate, recommends sterilizing the solution thus made and asserts that it will keep clear and bright indefinitely. Another method recommended by him is to make a concentrated solution, put it into small bottles, and sterilize. Use one of these

bottles and add the water, sirup, and the bicarbonate when wanted.—*Ibid.*, p. 343.

Bunting, George A., presents a formula for effervescent solution of magnesium citrate, which he asserts will keep indefinitely in a refrigerator or a cold place.—*Ibid.*, p. 433.

Diekman, George C., reports 125 samples of solution of magnesium citrate, examined by the eastern branch, 18 of which were below standard.—Rep. New York Bd. Pharm. (1909), 1910, p. 11.

Fitz-Randolph, R. B., reports that the one sample of solution of magnesium citrate examined was found to contain considerably less magnesia than required by the U. S. P. He concludes that in view of the difficulty of obtaining magnesium carbonate, which will comply with the somewhat too stringent requirements of the Pharmacopœia, considerable variation in the composition of the drug is to be expected.—Rep. New Jersey Bd. Health (1909), 1910, p. 195.

The Belgian inspectors of pharmacies report that in spite of repeated warnings there is still sold as magnesium citrate the English product containing sodium sulphate and sugar. This is a specialty which should disappear from the pharmacies.—J. d. pharm. d'Anvers, 1909, v. 65, p. 585.

Schamelhout, A., commenting on the above, says they call a spade a spade.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 237.

#### LIQUOR MAGNESII SULPHATIS EFFERVESCENS N. F.

Posey, H. G., points out that it hardly seems possible that an active demand is manifest for this preparation, particularly as it can hardly be sold in place of solution of magnesium citrate, of which it is a close congener, and the same might be said of liquor sodii citro-tartratis effervescens. Seemingly both formulas could well be omitted.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 990.

#### LIQUOR MORPHINÆ CITRATIS N. F.

Posey, H. G., asserts that solution of morphine citrate is a back number.—*Ibid.*, p. 990.

Diehl, C. L., reports from the committee on N. F., recommending the deletion of solution of morphine citrate.—*Ibid.*, p. 1075.

#### LIQUOR MORPHINÆ HYPODERMICUS N. F.

Posey, H. G., asserts that hypodermic solution of morphine is a back number.—*Ibid.*, p. 990.

Diehl, C. L., reports from the committee on N. F. recommending the deletion of hypodermic solution of morphine.—*Ibid.*, p. 1075.

## LIQUOR PANCREATICUS N. F.

Bruder, O. E., thinks that pancreatic solution and other preparations of the same type should be directed to be made fresh, as their activity is seriously impaired by age.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 231.

Diehl, C. L., reports from the committee on N. F. recommending the increase of alcohol to 65 cc., the use of magnesium carbonate in place of talc, and finally the addition of 5 gm. of sodium chloride and 2 cc. of chloroform to 1,000 cc. of the liquor. This not only preserves the solution but improves the taste.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1075.

## LIQUOR PHOSPHATUM ACIDUS N. F.

Posey, H. C., asserts that it is almost out of question to consider the formula for acid solution of phosphates satisfactory, and the committee could do much better by incorporating a formula containing the chemicals instead of deriving the phosphates from the bone ash with the aid of sulphuric acid.—*Ibid.*, p. 990.

Diehl, C. L., reports from the committee on N. F. the assertion that if pure white bone ash is used in the formula for acid solution of phosphates, no change is necessary.—*Ibid.*, p. 1076.

## LIQUOR PHOSPHORI N. F.

Diehl, C. L., reports from the committee on N. F. presenting an amendment of the first paragraph of the present process for the making of solution of phosphorus.—*Ibid.*, p. 1076.

## LIQUOR PICIS ALKALINUS N. F.

Posey, H. G., is curious as to the purpose for which alkaline solution of tar was given a place in the National Formulary. After an acquaintance of several years with tar and its many combinations, he does not recall ever having met this preparation.—*Ibid.*, p. 990.

Diehl, C. L., reports from the committee on N. F. the recommendation that the formula be similar to liquor carbonis detergens (with coal tar). A change in title to "Liquor Pyrolei Alkalinus" is also recommended.—*Ibid.*, p. 1076.

Raubenheimer, Otto, reports experiments in the making of Liquor Picis Carbonis and concludes that for a satisfactory preparation it is necessary to use tincture of quillaja made with 95 per cent alcohol. He presents a formula in which 200 gm. of coal tar are directed to be dissolved in 1,000 gm. of tincture of quillaja.—*Ibid.*, pp. 1031-1035.

## LIQUOR PLUMBI SUBACETATIS.

Bergh, Gustaf Fr., reviews the history of solution of subacetate of lead, discusses the chemistry, and outlines methods for determining the lead content.—Svensk. farm. Tidskr., 1909, v. 13, pp. 101–107.

Schamelhout, A., notes that the solution of basic lead acetate of the Ph. Fr. V is much more concentrated than that of the Ph. Belg. III. The densities are respectively 1.32 and 1.24.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 72.

The Belgian inspectors of pharmacies report the solution of lead subacetate inconstant in concentration; trouble is not always taken to verify its density, which is sometimes too strong, but more often too weak.—J. d. pharm. d'Anvers, 1909, v. 65, p. 583.

Mittelbach and Eberle assert that diluted solution of lead subacetate should be made extemporaneously.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 819.

## LIQUOR POTASSII ARSENATIS ET BROMIDI N. F.

Posey, H. G., asserts that in compliance with the pharmacopœial requirement of 1 per cent for the arsenic solutions, solution of potassium arsenate, and bromide should contain 1 gm. in 100 gm. and not 1 gm. in 100 cc., as at present.—*Ibid.*, p. 990.

Diehl, C. L., reports from the committee on N. F. recommending the omission of the synonyms "Liquor Arseni Bromidi" and "Solution of bromide of arsenic." The present note is recommended for deletion.—*Ibid.*, p. 1076.

## LIQUOR POTASSII ARSENITIS.

Lyons, A. B., presents a supplementary note on Liquor Potassii Arsenitis, and reports observations on 14 samples, showing the amount of oxidation that took place in the course of one year.—*Ibid.*, pp. 904–905.

Schamelhout, A., notes that the French solution of potassium arsenite is 1 per cent according to the decisions of the Brussels Conference. It contains 12 per cent of alcohol and 3 per cent of the compound alcoholate of melissa. The Fowler's solution of the Ph. Belg. III contains 14 per cent of alcohol and 1 per cent of spirit of melissa.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, pp. 79–80.

Scovell, M. A., reports Fowler's solution below the pharmacopœial standard.—Rep. Kentucky Agric. Exper. Sta. (1908–9), 1910, p. 7.

Hill, Edward C., reports one sample of Fowler's solution assaying 96 per cent U. S. P. standard.—Bull. Colorado Bd. Health, 1909, v. 9, No. 1, p. 2.

Army, H. V., reports 6 samples of solution of potassium arsenite examined; one sample up to U. S. P. requirements; the rest varied

from 0.89 to 0.93 gm. arsenic trioxide to 100 cc.; no excuse for this but carelessness.—Proc. Ohio Pharm. Ass., 1909, p. 66.

Bachman, Gustave, reports that in the solution of potassium arsenite examined, he found 0.843 per cent minimum and 0.98 per cent maximum. None of the samples met the pharmacopœial requirements.—Proc. Minnesota Pharm. Ass., 1909, p. 71.

Diekman, George C., reports 5 samples of Fowler's solution examined by the middle branch, 2 of which were below standard.—Rep. New York Bd. Pharm. (1909), 1910, p. 13.

Bramwell, Byrom, contributes a note on the treatment of pernicious anæmia by gradually increasing doses of Fowler's solution, with tabulated blood findings for a period of four months.—Brit. M. J., 1909, v. 1, p. 209.

#### LIQUOR POTASSII HYDROXIDI.

Sayre, L. E., is reported as saying it is practically impossible to secure a solution of potassium hydroxide which, although preserved in any kind of glass, will not form a more or less colored precipitate.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 819.

#### LIQUOR SACCHARINI N. F.

Diehl, C. L., reports from the committee on N. F. recommending the deletion of the note.—*Ibid.*, p. 1076.

#### LIQUOR SERIPARUS N. F.

Posey, H. G., thinks that liquid rennet serves no good purpose, now that rennin is an article of commerce easily obtainable, and should be discarded.—*Ibid.*, p. 990.

Diehl, C. L., reports from the committee on N. F. recommending that the formula for liquid rennet be dismissed.—*Ibid.*, p. 1076.

#### LIQUOR SODÆ CHLORINATÆ.

Eberle, E. G., quotes Dunning as suggesting the addition of the chlorinated lime smoothly suspended in water to the hot solution of sodium carbonate (without filtration), this facilitates separation of the calcium carbonate and avoids loss on filtration. Eberle suggests further an increase of the monohydrated sodium carbonate.—*Ibid.*, p. 819.

Brown, Edward J., discusses the chlorinated solutions of the Ph. Brit., and reports observations on their deterioration on keeping.—Pharm. J., Lond., 1909, v. 28 (82), p. 293, 347. See also Brit. & Col. Drug., 1909, v. 55, p. 178.



Beltzer, Francis J. G., reports a series of studies on the economical production of hypochlorites of alkalis by means of electrolysis.—*Ztschr. f. ang. Chem.*, 1909, v. 22, pp. 8-14.

Baird, J. W., quotes J. G. Molineaux's report on 10 samples each of liquor sodæ chlorinatæ U. S. P. (Labarraque's solution) and Liquor potassæ chlorinatæ N. F. (Javelle water). In order to obtain these samples it was necessary to visit 102 drug stores. It is evident that some druggists are not familiar with the term Javelle water, because Molineaux was told in one store that people were not drinking much Javelle water nowadays, and wanted to sell Apollinaris instead. On examination the samples of Labarraque's solution assayed from 0.13 to 3.05 per cent of chlorine, and those of Javelle water, from 0.608 to 2.86 per cent of available chlorine.—*Proc. Massachusetts Pharm. Ass.*, 1909, p. 123.

#### LIQUOR SODII ARSENATIS, PEARSON N. F.

Posey, H. G., points out that the French Codex, from which the formula for Pearson's solution of sodium arsenate is taken, requires parts by weight, and the formula to be correct should read 1 gm. in 600 gm. and not 1 gm. in 600 cc.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 990.

Diehl, C. L., reports from the committee on N. F. recommending that Pearson's solution of sodium arsenate be dismissed.—*Ibid.*, p. 1076.

Beringer, George M., thinks that Pearson's solution of sodium arsenate N. F., should be retained as it is occasionally directed and the official Liquor Sodii Arsenatis is so much stronger.—*Ibid.*, p. 1076.

#### LIQUOR SODII BORATIS COMPOSITUS N. F.

Diehl, C. L., reports from the committee on N. F. recommending the use of liquefied phenol, 3.3 cc., instead of (3 gm.) crystallized phenol.—*Ibid.*, p. 1077.

#### LIQUOR SODII CARBOLATUS N. F.

Cook, E. Fullerton, thinks the title of solution of sodium carbolate should conform to the U. S. P. nomenclature, "phenolate" in place of "carbolate."—*Ibid.*, p. 962.

Diehl, C. L., reports from the committee on N. F. recommending the dismissing of solution of sodium carbolate.—*Ibid.*, p. 1077.

#### LIQUOR SODII CITRATUS N. F.

Diehl, C. L., reports from the committee on N. F. recommending the deletion of ("G. P.") after the synonym "Potio Riveri;" also the

deletion of the note. The first paragraph should read: "Dissolve the citric acid in the water, contained in a strong bottle, add the sodium bicarbonate, dissolve by agitation and immediately stopper with a well-secured cork.—*Ibid.*, p. 1077.

#### LIQUOR SODII HYDROXIDI.

Beadle, Clayton, reports some observations on the change in the specific gravity of caustic soda solutions.—*Chem. News, Lond.*, 1909, v. 99, p. 147.

The White Cross Congress held in Paris in October, 1909, presents the following description for liquid caustic soda: May be an aqueous solution of solid or caustic soda, or be produced by caustifying sodium carbonate by lime or electrolyzing sodium chloride. NaOH should be indicated when sold; if nothing is indicated it should contain 25 per cent of NaOH. May contain small quantities of sulphates, carbonates, and chlorides, and traces of alumina, lime, metals, sulphides, and cyanides.—*Chem. & Drug., Lond.*, 1909, v. 75, p. 682.

Benedict, Francis G., describes and illustrates an automatic pipette for caustic soda solution.—*J. Am. Chem. Soc.*, 1909, v. 31, pp. 652-654.

#### LIQUOR SODII PHOSPHATIS COMPOSITUS.

Stanislaus, I. V. S., in discussing the compound solution of sodium phosphate, points out that the U. S. P. directs the employment of uneffloresced crystals of sodium phosphate and that this salt readily loses about 25 per cent of its water of crystallization. He recommends that greater care be exercised in preventing the efflorescence of this salt. He recommends the use of exsiccated sodium phosphate in making the compound solution.—*Am. J. Pharm., Phila.*, 1909, v. 81, p. 100.

Nitardy, F. W., asserts that when compound solution of sodium phosphate is made according to pharmacopœial directions it will partly crystallize on standing. He recommends increasing the quantity of citric acid and presents a formula used by him for some years.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1056.

Dunning, H. A. B., is reported as suggesting the increasing of citric acid in compound solution of sodium phosphate to 200 gm.—*Ibid.*, p. 819.

Eliel, Leo, uses 80 gm. of citric acid and 50 gm. of phosphoric acid, in making compound solution of sodium phosphate.—*Southern Pharm. J.*, 1908-9, v. 1, p. 123.

Thum, John K., discusses the pharmacopœial formula for compound solution of sodium phosphate and concludes that reducing the amount of sodium nitrate to 1 per cent inhibits recrystallization.

He also suggests making the solution by heating, rather than by titration.—*Am. J. Pharm., Phila.*, 1909, v. 81, pp. 10-11.

Eberle, E. G., reports the satisfactory use for a number of years of the formula suggested by Scoville: The use of 230 gm. citric acid and no sodium nitrate in compound solution of sodium phosphate.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 819.

#### LIQUOR STRYCHNINÆ ACETATIS N. F.

Posey, H. G., asserts that solution of strychnine acetate is another of the solutions which could be dispensed with, both by reason of its being of so little use and because of the danger of preparations of potent alkaloidal substances of such strength being placed in the wrong hands.—*Ibid.*, p. 990.

Taylor, Augustus Carrier, points out that solution of strychnine acetate N. F. is about one-fifth of 1 per cent in strength, while the British Pharmacopœia gives solution of strychnine hydrochloride with a synonym "solution of strychnia," a one per cent solution. It would be better not to have any official solution of strychnine, but impress upon the physician the necessity of always specifying the strength desired when writing for simple solutions of such strong remedies.—*Pharm. Era*, 1909, v. 41, p. 493.

#### LIQUOR ZINCI ET ALUMINI COMPOSITUS N. F.

Posey, H. G., thinks that compound solution of zinc and aluminum is an excellent preparation, and gives very great satisfaction.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 990.

#### LIQUOR ZINCI ET FERRI COMPOSITUS N. F.

Posey, H. G., thinks that compound solution of zinc and iron is not a satisfactory preparation, as it can not be generally used on account of the iron sulphate and copper sulphate, both of which preclude the possibility of using it as a disinfectant of fabrics of any kind.—*Ibid.*, p. 990.

Sayre and Coburn report a preparation of compound solution of zinc and iron which was clear at first, but, after standing four or five days, a very fine red precipitate formed. It was enough to cover the bottom of the container, but did not seem to accumulate much after seven or eight days.—*Proc. Kansas Pharm. Ass.*, 1909, p. 89.

#### LITHII BENZOAS.

Barton, Wilfred M., asserts that one of the greatest mysteries of pharmacology is that lithium ever obtained its tremendous vogue with medical men. Not only is the present-day physician losing faith in

the drug, but he is extremely suspicious that his confidence has been betrayed with respect to the very existence of the uric acid diathesis. Barton adds that the opinion of pharmacologists at the present time is that the salts of lithium are entirely superfluous.—J. Am. M. Ass., 1909, v. 52, p. 1560.

#### LITHII BROMIDUM.

Dohme and Engelhardt report a shipment of lithium bromide which, besides possessing a brownish color, assayed 93.8 per cent of absolute lithium bromide.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 716.

Ellingwood, Finley, asserts the bromide of lithium is indicated when, in conjunction with a nerve sedative, a sedative to the kidneys is desired which will increase their action, or when nerve irritation is due to lithæmia.—Eclectic Rev., 1909, v. 12, p. 18.

#### LITHII CARBONAS.

Merck, E. (Darmstadt), criticises the Ph. Fr. V statement that lithium carbonate is soluble in 7 parts of boiling water, which he says is erroneous. The correct value, 1 to 140, is that of the Ph. Germ. IV, Ph. Japon. III, and U. S. P. VIII. He cites also Abegg's *Handbuch der anorg. Chemie*, v. 2, pt. 1; Dammer's *Anorg. Chem.*, v. 2, pt. 1; Schmidt's *Pharm. Chemie*.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 551.

Scoville, W. L., reports lithium carbonate assaying 97.2 to 98.3 per cent pure.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 733.

#### LITHII CITRAS.

Dunn, John A., asserts that the U. S. P. formula for effervescent lithium citrate furnishes too little moisture and works badly. He suggests decreasing the amount of tartaric acid and increasing the citric acid. Also suggests substituting crystallized sodium carbonate for part of the bicarbonate and presents a formula so modified.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 946.

#### LITHII SALICYLAS.

Seidell, Atherton, points out that the U. S. P. asserts that lithium salicylate is very soluble; his results would indicate that it is soluble in 0.786 parts of water. The official requirement is that it be very soluble in alcohol; his results would indicate that it is soluble in 1.193 parts.—J. Am. Chem. Soc., 1909, v. 31, p. 1168.

Merck, E. (Darmstadt), asks why, if lithium salicylate is unaltered by light, as stated by the Ph. Fr. V, it should be kept shielded from the light.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 551.

The Belgian inspectors of pharmacies report that lithium salicylate is frequently rose colored.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 586.

Schamelhout, A., remarks that the Ph. Belg. tolerates a product slightly rose colored, and asks if these rose colored products are not alkaline.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 238.

### LOBELIA.

Rusby, H. H., has seen lobelia that consisted almost wholly of thick, fibrous and nearly inert stems. The word tops, he thinks, should be limited to those of a certain size.—*Midl. Drug.*, 1909, v. 43, p. 690. See also *Pharm. Era*, 1909, v. 42, p. 634.

Schamelhout, A., notes that the Ph. Fr. V does not tolerate, as does the Ph. Belg. III, the fruits of lobelia.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 57.

Cook, E. Fullerton, reports that tincture of lobelia develops a small quantity of a dark-colored, finely divided precipitate and also contains a separation of an oily character, which clings to the bottle at the top of the liquid.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1003.

An editorial (*J. Therap. & Diet.*, 1909-10, v. 4, p. 96) asserts that lobelia is a cardiac stimulant. When the circulation exhibits a markedly low pulse wave it will be better corrected by lobelia than by any other drug we possess.

Phillimore, Fred. G., enumerates lobelia among the drugs that are useful in combating the vomiting of pregnancy.—*Ibid.*, p. 11.

Taylor, A. P., uses lobelia hyperdermically in nausea and vomiting, angina pectoris, diphtheria, neurasthenia, and painful menstruation; the only unpleasant effect he has had is the irritation produced for the first 10 or 15 minutes after the injection and an abscess in one case. It may have been caused by some infection.—*Eclectic M. J.*, Cincin., 1909, v. 69, pp. 651-654.

Jentzsch, F., asserts that it is quite certain that lobelia given hypodermically is nonpoisonous. In a series of experiments, performed by him on dogs ranging in ages from a few weeks to 12 years, he has failed to elicit any poisonous symptoms, giving the drug in 2 drachm doses every 3 hours to the number of 6 injections.—*Eclectic Rev.*, 1909, v. 12, pp. 50-52.

An editorial (*Ibid.*, p. 85) quotes A. F. Stephens as recording his failure to obtain any benefit from the hypodermic use of lobelia in the treatment of his cases of diphtheria.

Jentzsch, F., asserts that he has found Lloyd's Hypodermic Lobelia to be simply unsuitable for the purpose, and asserts that the specific tincture must be used.—*Ibid.*, p. 141.

Webb, Frank, asserts that in every case in which he has used lobelia hypodermically he has obtained the most brilliant results.—*Ibid.*, p. 201.

Stephens, A. F., believes that lobelia will relieve those cases of pertussis wherein the breathing is short and labored with a sensation of oppression in the chest, or when pain is complained of in the region of the heart.—*Nat. Eclect. Med. Ass. Quart.*, 1909-10, v. 1, p. 126.

Leming, W., presents the following specific indications for the use of lobelia: (1) A sense of dyspnoea over the chest and heart; (2) a fullness and atonicity of tissue—doughiness; (3) spasmodic and congestive conditions, local and general; (4) cough, with or without glandular secretion, with above indications; (5) shock to the vital forces; collapse (hypodermic use); (6) toxæmias; diphtheria, membranous croup, tetanus (hypodermic use); (7) nerve excitation; morphinism (hypodermic use).—*Eclectic Rev.*, 1909, v. 12, p. 88. See also *Eclectic M. J.*, Cincin., 1909, v. 69, pp. 192-193, and *J. Therap. & Dietet.*, Boston, 1908-9, v. 3, pp. 251-253.

Stephens, A. F., discusses the use of lobelia as an antitoxin. He points out that while lobelia may be specific for certain diphtheritic conditions, uniformity of action in all cases need not be thought of.—*Eclectic M. J.*, Cincin., 1909, v. 69, pp. 156-158.

For additional references, see *Index Medicus*.

## LOTIONES.

### LOTIO ADSTRINGENS N. F.

Posey, H. G., thinks the title of Lotio Adstringens should be changed. Moreover, he thinks the preparation is of so little use that it might be dropped and not be missed.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 991.

Diehl, C. L., reports from the committee on N. F. recommending the deletion of astringent lotion. It was originally called "Warren's Styptic Balsam" and administered internally. It was not intended for a lotion.—*Ibid.*, p. 1077.

### LOTIO NIGRA N. F.

Diehl, C. L., reports from the committee on N. F. recommending a change in directions, which is presented.—*Ibid.*, p. 1077.

### LOTIO PLUMBI ET OPII N. F.

Diehl, C. L., reports from the committee on N. F. pointing out that physicians do not agree to what should be used in the formula

for lotion of lead and opium—some prefer solution of lead subacetate, others prefer the acetate. The subacetate more completely precipitates the gummy matter. The preparation is not used frequently enough to warrant a change.—*Ibid.*, p. 1077.

### LUPULINUM.

Fussell, M. H., in recommending that lupulin be deleted from the Pharmacopœia, asserts that it should certainly be carefully investigated as to comparative value before it is replaced in the Pharmacopœia.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 204.

The committee on adulteration reports that much attention should be given to lupulin, as in most cases the amount of ash exceeds the limits of the U. S. P.—Proc. Maryland Pharm. Ass., 1909, p. 73.

Vanderkleed, C. E., asserts that it is apparent that the U. S. P. limit of 10 per cent ash is too low.—Proc. Pennsylvania Pharm. Ass., 1909, p. 125.

Kline, C. M., reports a lot of lupulin containing approximately 50 per cent of fragments of the strobiles and other plant parts. One sample could not be used because adulterated with sand and various plant tissues, and 5 additional samples contained from 17 to 35.92 per cent of ash; 3 of these samples contained from 54 to 66.7 per cent ether-soluble material.—Proc. N. W. D. A., 1909, p. 130.

Bernegau, L. H., reports 10 samples of lupulinum examined which contained from 12.6 to 17.9 per cent of ash, and from 34 to 65.8 per cent ether-soluble matter.—Proc. Pennsylvania Pharm. Ass., 1909, p. 125.

Pearson, W. A., found 17, 23, and 40.4 per cent of ash in lupulin with 66.7, 60.1, and 54 per cent ether-soluble matter.—*Ibid.*, p. 180.

Dohme and Engelhardt report that various samples submitted did not at all come up to U. S. P. requirements. They were deficient in ether-soluble matter (47, 50, 43 per cent) and exceeded the amount of ash (29, 30 per cent, etc.).—Proc. Am. Pharm. Ass., 1909, v. 57, p. 716.

Baird, J. W., quotes M. Brody's report on 15 samples of lupulin, only 1 of which was adulterated. This sample was brownish black, very coarse, and contained ground bark.—Proc. Massachusetts Pharm. Ass., 1909, p. 123.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 13) report that the only sample of lupulin examined proved of quite satisfactory quality. Ash yield was 10.28 per cent, and residue insoluble in ether 35.80 per cent.

Caesar & Loretz (Geschäfts-Ber., 1909, p. 30) assert that lupulin with 6.5 to 10 per cent of ash is now available, while in former years this quality was difficult to obtain.

Bullock, Lillian G., asserts that the chief value of lupulin as a drug lies in its sedative properties. In mild cases of delirium tremens

it acts both as a stomachic tonic and as a cerebral sedative.—*J. Therap. & Dietet.*, Boston, 1908-9, v. 3, pp. 298-300.

### LYCOPODIUM

Rusby, H. H., thinks that traces of starch should not be forbidden in lycopodium.—*Midl. Drug.*, 1909, v. 43, p. 691. See also *Pharm. Era*, 1909, v. 42, p. 634.

Caesar & Loretz (*Geschäfts-Ber.*, 1909, pp. 92-93) point out that the majority of modern pharmacopœias permit the presence of 5 per cent of ash in lycopodium, while the *Ph. Helv.* and *Ph. Austr.* limit the permissible ash to 3 per cent.

Schamelhout, A., states that, according to the Second International Congress for the Repression of Adulteration (Paris, 1909), lycopodium should leave not more than 0.5 per cent of ash; the *Ph. Belg. III*, 4 per cent.—*Bull. Soc. roy. d. pharm.*, Brux., 1909, v. 53, p. 338.

Caesar & Loretz (*Geschäfts-Ber.*, 1909, p. 35) report that of the samples of lycopodium examined during the year 3 contained upwards of 20 per cent of starch and 1 was evidently adulterated with pine pollen.

Unna (*Monatsh. f. prakt. Dermat.*, Oct. 1, 1908) discusses the advantages of using as a vehicle a powder which is very mobile, like lycopodium. Artificially a very mobile powder may be made by mixing 98 parts potato starch with 1 part carnauba wax and 1 part light magnesium carbonate.—*J. Am. M. Ass.*, 1909, v. 52, p. 245.

Nourse, A. L., asserts that lycopodium is an exceedingly active drug and has a wide range of usefulness, principally in respiratory and genito-urinary diseases, and quotes from eclectic and homœopathic works on materia medica to substantiate this assertion. In conclusion he points out that of all the menstrua supposedly inert, but which really have untoward action, no doubt lycopodium is oftenest at fault.—*Drug. Circ.*, N. Y., 1909, v. 53, p. 293.

### MAGMA MAGNESIÆ N. F.

Posey, H. G., asserts that repeated trials with the formula for magnesia magma have failed to produce a satisfactory preparation.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 991.

Bruder, Otto E., thinks that the amount of sodium hydroxide in the formula for magma magnesiæ can be increased by one-half and that the two primary solutions should be reduced to one-eighth of what the formula calls for. This would give a heavier precipitate and one that occupies less space, and the finished preparations can more easily be poured from one bottle to another, something hardly possible with the official preparation.—*Ibid.*, p. 966. Also *Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 231.



Diehl, C. L., reports from the committee on N. F. recommending reducing the quantity of magnesium sulphate to 220 gm. and the sodium hydroxide to 72 gm. This will give a trifle over 50 gm. of magnesium hydroxide to 1,000 cc., or 0.2 gm. to 4 cc., which is more than the present requirement of 3 grains to the teaspoonful. The present directions should be used with Boehm's method of washing. A change in title to "*Mistura Magnesii Hydroxidi*" is also recommended.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1077.

Lyon, W., discusses the formula for *emulsio magnesiae* B. P. C. He thinks the Codex name is not a very appropriate selection, and that cream of magnesia is much better.—*Pharm. J., Lond.*, 1909, v. 28 (82), pp. 147-148.

#### MAGNESII CARBONAS.

White, Edmund, describes magnesium carbonate, enumerates the trade varieties, and gives a number of tests to which the article used as an analytical reagent should comply.—*Pharm. J., Lond.*, 1909, v. 28 (82), p. 585.

Schamelhout, A., notes that French magnesium hydrocarbonate should contain fully 43 per cent magnesium oxide; the Belgian product should contain at least 40 per cent.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 69.

Colle, Bernard, finds it difficult to secure magnesium carbonate of the requisite purity for the making of a solution of magnesium citrate. He thinks that the revisers of the Pharmacopœia have not given sufficient attention to these conditions.—*Proc. New York Pharm. Ass.*, 1909, p. 175.

Lehn & Fink (Annual Report for 1909, pp. 23-26) assert that the pharmacopœial tests for magnesium carbonate need careful revision. A method is given, in detail, for estimating the quality of this substance. See also *Am. Druggist*, 1909, v. 55, p. 143.

Patch, E. L., reports 11 lots magnesium carbonate, 90 to 93 per cent oxide, 0.4 to 0.7 soluble salts.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 733.

#### MAGNESII OXIDUM.

Gane and Webster point out that it is difficult to obtain calcined magnesia that will comply with the U. S. P. hydration test. They think that the time limit might be extended and additional details be added for the manner in which the test should be carried out, or that the test should be omitted altogether.—*Drug Topics*, New York, 1909, v. 24, p. 68.

White, Edmund, describes magnesium oxide, enumerates the trade varieties, and gives a number of tests to which the article used as an

analytical reagent should comply.—Pharm. J., Lond., 1909, v. 28 (82), p. 585.

Umney, J. C., points out that, in connection with calcined magnesia, the programme for the White Cross Society Congress makes no reference to contamination with lead and no limitation is fixed.—Chem. & Drug., 1909, v. 75, p. 581.

Frerichs and Kroseberg present the results of a comprehensive study of commercial calcined magnesia. They point out that but 1 sample of the 10 samples examined complied fully with the requirements of the Ph. Germ. IV; 2 additional samples were found to be fairly satisfactory.—Apoth Ztg., Berl., 1909, v. 24, pp. 678–680.

Buisson, A., presents a paper on the magnesium products and their assays, according to the Ph. Fr. V.—J. d. pharm. et d. chim., Par., 1909, v. 30, pp. 205–209.

A committee of the Syndicat général de la Droguerie française asks that traces of iron, and the presence of carbonate, sulphate, and chloride be tolerated in magnesium, since the Codex permits traces of sulphate and chloride in the carbonate.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 288.

Pearson, W. A., found samples of magnesium oxide containing an excess of foreign soluble salts.—Proc. Pennsylvania Pharm. Ass., 1909, p. 180.

Patch, E. L., reports foreign soluble salt in 1 gm. magnesium oxide 0.001; limit of carb. O. K.; limit of calcium O. K.; limit of iron, traces; heavy metals O. K.; water of hydration in 2 samples, 9 and 5 per cent; MgO in ignited sample, 94.06 and 97.74 per cent.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 733.

Gane, E. H., asserts that magnesium oxide can be easily had of U. S. P. purity, but will not answer the hydration test; 1 part with 15 of water requires to stand over half an hour. Light, fresh samples gelatinize quicker than old, heavy samples. Often, if well rubbed down in a mortar before adding the water, it will gelatinize quicker.—*Ibid.*, p. 733.

The examination of drug samples in 1907 showed that, of 93 samples of magnesia and preparations examined, 23 were found to be adulterated or not up to standard.—Pharm. J., Lond., 1909, v. 28 (82), p. 182.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 41) report 8 parts arsenic per million in one sample magnesium oxide. This was the highest result obtained.

The Belgian inspectors of pharmacies report that calcined magnesia rarely meets the requirements of the Pharmacopœia. It is adulterated with lime, iron, aluminum, and chloride.—J. d. pharm. d'Anvers, 1909, v. 65, p. 586.

Schamelhout, A., remarks that there is no amelioration in this product.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 238.

Prinz, Hermann, recommends the admission of magnesium dioxide as the best representative of the new compounds which evolve nascent oxygen.—J. Am. M. Ass., 1909, v. 53, p. 796.

#### MAGNESII OXIDUM PONDEROSUM.

Enell, Henrik, discusses the composition of heavy oxide of magnesia.—Svensk. farm. Tidskr., 1909, v. 13, pp. 121–123.

For additional comments, see *Ibid.*, pp. 147, 149, 256, 279.

#### MAGNESII SULPHAS.

White, Edmund, describes magnesium sulphate, enumerates the trade varieties, and gives a number of tests to which the articles used as an analytical reagent should comply.—Pharm. J., Lond., 1909, v. 28 (82), p. 586.

A committee of the Syndicat général de la Droguerie française asks that traces of chlorides and of iron be tolerated in magnesium sulphate.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 288.

Dunlap, Renick W., reports 2 samples of Epsom salts examined; not passed.—Rep. Ohio Dairy & Food Com., 1909, p. 59.

The examination of drug samples in 1907 showed that, of 63 samples of Epsom salts examined, 2 were found adulterated or not up to standard.—Pharm. J., Lond., 1909, v. 28 (82), p. 182.

The Belgian inspectors of pharmacies report that the fact that the new Pharmacopœia is much more exacting as to purity of magnesium sulphate is generally lost sight of; the English salt, containing a notable quantity of chloride is still sold.—J. d. pharm. d'Anvers, 1909, v. 65, p. 586.

Schamelhout, A., remarks that the pharmacist should not forget that his interest requires him to deliver only pure magnesium sulphate; thus he differentiates himself from the druggist.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 257.

Dunn, John A., asserts that, when magnesium sulphate is dried till it ceases to lose weight, it does not make a clear solution in the effervescent mixture, and the presence of tartaric acid also tends to prevent a clear solution. He presents a formula in which citric acid alone is used.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 945.

Patch, E. L., reports magnesium sulphate, dried, with traces of chlorides, assays from 69.6 to 80.8 per cent anhydrous.—*Ibid.*, p. 733.

Felter, H. W., states that in summer diarrhœas of children, when the discharges are slimy or streaked with blood, magnesium sulphate is most effective. The dose employed does not exceed 2 grains, repeated every 3 hours.—Eclectic M. J., Cincin., 1909, v. 69, p. 451.

Magnus, R., reviews the observations that have been made on the cathartic action of salts, and comments more particularly on the action of magnesium sulphate.—*Therap. Monatsh.*, Berl., 1909, v. 23, pp. 657–658.

An editorial (*Therap. Gaz.*, 1909, v. 33, pp. 328–330) in discussing the action of saline purgatives, expresses the belief that the dominant influence of magnesium sulphate depends upon its causing a retention of fluid in the bowel and in adding to that fluid by the pouring out of liquid from the tissue.

Mendel and Benedict in a series of reports on the paths of excretion for inorganic compounds, report on the excretion of magnesium, and point out that their experiments furnish conclusive experimental evidence of the predominant importance of the kidneys in the elimination of the excess of magnesium introduced into the blood by parenteral paths.—*Am. J. Physiol.*, 1909–1910, v. 25, pp. 1–22.

Fraser, Charles, discusses Epsom salts as a poison, with a record of a case of unusual symptoms due to this drug, and a review of six cases appearing in the literature between 1841 and 1896.—*Lancet*, 1909, v. 176, pp. 1174–1176; see also pp. 1417, 1487.

Joseph and Meltzer assert that physostigmine may directly serve as a life-saving agent against a fatal poisoning by magnesium salts, if the dose of the latter employed be not too large.—*J. Pharm. & Exper. Therap.*, 1909–10, v. 1, p. 386.

An abstract points out that magnesium sulphate is being extensively used in the hospitals of the United States as a local application for acute and subacute inflammation of the skin and in erysipelas. The application consists of a saturated solution of magnesium sulphate in water.—*Merck's Rep.*, 1909, v. 18, pp. 17–18.

Solis-Cohen, Solomon, reports some observations on the analgetic effect of the local application of solutions of magnesium sulphate and other salts.—*Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, pp. 157–158. Also *J. Am. M. Ass.*, 1909, v. 53, p. 1892.

Torbett, J. W., calls attention to the fact that he had read of the external use of magnesium sulphate solution in burns, some 14 years ago, and that in a book published in 1904 by W. H. Burgess, of Avondale, Chattanooga, Tenn., Epsom salt is recommended for all local inflammations, such as erysipelas and orchitis, also for rheumatism and similar conditions.—*Therap. Gaz.*, 1909, v. 33, p. 456.

An editorial (*Am. Vet. Rev.*, 1908–9, v. 34, pp. 295–297) discusses the treatment of tetanus by intrarachidian injections of magnesium sulphate.

An editorial (*Lancet*, 1909, v. 176, p. 256) calls attention to the work of Meltzer and of Miller in connection with the treatment of tetanus by subarachnoid injection of magnesium sulphate.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 254-255) reviews some of the recent literature relating to the use of magnesium sulphate as a cure for tetanus.

For additional references\* on the use of manganese sulphate, see Index Medicus and J. Am. M. Ass.

#### MALTUM.

Caldwell, Paul, asserts that extract of malt has its home on any corner; but not every corner is a drug store—not yet. In order to be able to get change when we need it most, he suggests dropping extract of malt from our list before Carrie Nation calls.—Bull. Pharm., 1909, v. 23, p. 115.

Dohme and Engelhardt think that requirements for extract of malt, as to percentage of maltose and diastasic power should be given.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 886.

Ling, Rendle, and McLaren, in a discussion on the production of diastase during the germination of barley on the malting floors, point out that the production of diastase is not restricted to that portion of the endosperm adjacent to the columnar epithelium of the scutellum, as stated by Brown and Morris, but that it is formed in all parts of the endosperm.—Pharm. J., Lond., 1909, v. 28 (82), p. 364.

Hughes, E. K., presents a note on the diastasic value of malt extracts, and the estimation of free acid and of diastasic value.—*Ibid.*, pp. 432-433.

Harrison, E. F., reports observations on the different methods of estimating the diastasic value of malt extract, and outlines a method which he asserts gives extremely accurate results.—*Ibid.*, pp. 388-390. See also v. 29 (83), p. 133, and Proc. VIIth Internat. Congress App. Chem., Sec. VIIIb, Pharmacy, 1909, London, 1910, pp. 136-137.

#### MANGANI DIOXIDUM PRÆCIPITATUM.

The editor of the "Therapeutics" column (J. Am. M. Ass., 1909, v. 53, p. 1031) asks why consider or ponder on the value of manganese in chlorosis when small doses of iron are sufficient?

#### MANGANI SULPHAS.

Schreinemakers, F. A. H., reports experiments to determine the solubility of manganese sulphate in mixtures of water and alcohol.—Chem. Weekblad., 1909, v. 6, pp. 136-139.

#### MANNA.

Niehl, C. L., reports from the committee on N. F. the recommendation that the formula for sirup of manna be dropped or modified.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1088.

**MARRUBIUM.**

Capps, Pratt, McCrae, and Halsey recommend the deletion of marrubium from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

Schneider, Albert, points out that marrubium is a very common California weed. It can be grown anywhere.—Pacific Pharmacist, 1909-10, v. 3, p. 193.

Beringer, George M., states that there has arisen some demand for a sirup of hoarhound and suggests a method for its preparation.—Proc. New Jersey Pharm. Ass., 1909, p. 45.

**MASSA FERRI CARBONATIS.**

Schamelhout, A., notes that pills of ferrous carbonate of the Ph. Fr. V contain no sulphate of potassium, weigh 0.20 to 0.25 gm., and are not silver coated. The Ph. Belg. III makes no distinction between Bland's and Vallet's pills.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 72.

**MASSA HYDRAGYRI.**

A new process for making mercurial pill is given in the "Deutsch. Medizin. Ztg." by Anuxhat. A compound called "pasta glycocholica" is first made by digesting 5 gm. of fresh lard with 10 gm. of sodium glycocholate, and the mercurial pill is made by triturating 5 gm. of metallic mercury with 15 gm. of the pasta glycocholica.—Chem. & Drug., Lond., 1909, v. 74, p. 727.

The Fourteenth Annual Report of the Local Government Board for Scotland reports 4 samples of mercury pills examined, 3 of which were found to be adulterated.—*Ibid.*, 1909, v. 75, pp. 17, 18.

**MASTICHE.**

Fussell, M. H., in recommending the deletion of mastic from the Pharmacopœia, asserts that it is said never to be used except in the compound pill of aloes and mastic. Surely it can be dispensed with.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 204.

**MATICO.**

Fussell, M. H., in recommending the deletion of matico from the Pharmacopœia, asserts that matico has possible values, but they are only problematical.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 204.

Capps, Pratt, McCrae, and Halsey recommend the deletion of matico and fluidextractum matico from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

Rusby, H. H., thinks that, for matico, the Pharmacopœia should adhere to its definition of *Piper angustifolium*, and should make its

definition more precise, so as to exclude other species.—Midl. Drug., 1909, v. 43, p. 691. See also Pharm. Era, 1909, v. 42, p. 634.

Thoms, H., reports an investigation on matico leaves and matico oil, and presents illustrations of a number of the commercially available leaves.—Arch. a. d. pharm. Inst. d. Univ. Berl. (1909), 1910, v. 7, pp. 70–88. See also Arch. d. Pharm., 1909, v. 247, pp. 591–612; Pharm. J. Lond., 1909, v. 28 (82), p. 867; Proc. VIIth Internat. Congress App. Chem., Sec. VIIb, Pharmacy, 1909, London, 1910, pp. 17–22.

#### MATRICARIA.

Fussell, M. H., in recommending the deletion of *matricaria* (chamomile) from the Pharmacopœia, asserts that as a tea it is a popular remedy with the masses. It has no proper place in the Pharmacopœia.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 204.

Capps, Pratt, McCrae, and Halsey recommend the deletion of *matricaria* from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

Schneider, Albert, points out that chamomile and related plants thrive exceedingly well in California. A native chamomile (*Matricaria discoidea* D. C.) is much used as a domestic remedy as a tonic diaphoretic and to check diarrhœa.—Pacific Pharmacist, 1909–1910, v. 3, p. 192.

Jama, A., presents some observations on the volatile oil of *matricaria*, and describes and illustrates some of the structural characteristics of the flowers.—Apoth. Ztg., Berl., 1909, v. 24, pp. 585–586.

Fyfe, John William, asserts that *matricaria* often constitutes a valuable medicament, and has been found especially useful in the treatment of children during the summer months.—Eclectic Rev., 1909, v. 12, pp. 180–181.

#### MEL.

Woods, Charles D., defines honey as the nectar and saccharine exudations of plants gathered, modified, and stored in the comb by honey bees (*Apis mellifica* and *A. dorsata*); it is lævo-rotatory, contains not more than 25 per cent of water, not more than 0.25 per cent of ash, and not more than 8 per cent of sucrose.—Rep. Maine Agric. Exper. Sta. (1909), 1910, App. p. 116.

The Catalogue of Definitions adopted by the International Congress for the Suppression of Food Adulteration (Geneva, 1908) describes honey as the substance which the bees produce in transforming the saccharine juices collected from plants and which they store in the honey comb.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 237.

Lehn & Fink (Annual Report for 1909, pp. 40–41) point out that for the routine examination of honey, apart from a consideration of

its physical properties (color, odor, taste, and consistence), the direct and invert polarization usually suffice to establish the genuineness of the sample or otherwise. The direct reading of honey, when pure, ranges from about  $-2.4^{\circ}$  to  $-19^{\circ}$  (Ventzke scale). A dextrogyrate rotation indicates added cane sugar or glucose. If, after inversion, the rotation is still right-handed, glucose is present; if left-handed, cane sugar. The sucrose, calculated by Clerget's formula, should not exceed 7 or 8 per cent. The correct procedure for determining the direct and invert readings is given.

Beringer, George M., asserts that a drop of the sediment at the bottom of the honey examined by the microscope will show numerous pollen grains, plant hairs, and elements indicating the source of natural honey.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 812.

Thomann, J., outlines a new method, suggested by Langer, for testing honey.—*Schweiz. Wchnschr. f. Chem. u. Pharm.*, Zürich, 1909, v. 47, pp. 316-317.

Lühlig, H., presents a contribution on the valuation of honey.—*Pharm. Zentralh.*, 1909, v. 50, pp. 605-606.

Hertkorn, J., presents a contribution to the testing of honey, and points out the importance of developing rational methods for the testing of honey so as to avoid having genuine products suspected as being adulterated.—*Chem. Ztg.*, Cöthen, 1909, v. 33, p. 481.

Braungad, Karl, criticises some of the rapid methods for detecting invert sugar in honey, and expresses the hope that chemists will be able to develop a more satisfactory test in the very near future.—*Pharm. Ztg.*, Berl., 1909, v. 54, p. 16-17.

Schroeder, P., discusses the purifying of honey and recommends a modification of the Ph. Germ., IV, method.—*Ibid.*, p. 283. See also papers by Jägerschmid, v. Raumer, Klassert, Lund, and Bremer and Spönnagel.—*Ztschr. f. Unters. Nahr. u. Genussm.*, 1909, v. 17, pp. 113ff.

Witte presents a comprehensive review of the several methods proposed for examining honey.—*Ibid.*, 1909, v. 18, pp. 625-649.

Dohme and Engelhardt report that one shipment of honey contained an excess of cane sugar.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 715.

Kline, C. M., reports honey composed of invert sugar and glucose detected at the port of Philadelphia. This was a small consignment for personal use and was allowed entry when it was properly labeled.—*Proc. N. W. D. A.*, 1909, p. 186.

Fitz-Randolph, R. B., reports 86 samples of honey examined, 9 of which were found to contain little or no honey, but were composed largely of invert sugar.—*Rep. New Jersey Bd. Health* (1909), 1910, p. 195.



Woods, Charles D., reports 6 samples of honey, 1 of which was misbranded and 1 contained an excess of sucrose.—Rep. Maine Agric. Exper. Sta. (1909), 1910, App. pp. 99–100.

Rose, R. E., reports 1 sample of honey containing 17.02 per cent of water; 0.26 per cent ash; 1.21 per cent sucrose by Clerget; and 4.91 per cent glucose.—Bull. Florida Agric. Dept., 1909, p. 121.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 22) report on 24 samples of honey from various sources; moisture at 100° C., 13.8 to 19.6 per cent; ash, 0.06 to 0.5 per cent; specific gravity, 1.094 to 1.108; optical rotation,  $-2^{\circ} 48'$  to  $-5^{\circ} 30'$ . Traces of chlorides were found in two samples.

The Belgian inspectors of pharmacies report that honey sometimes leaves something to be desired. They found honey fermented and containing impurities due to lack of care in collecting.—J. d. pharm. d'Anvers, 1909, v. 65, p. 551.

Schroeder, P., discusses the purification of honey and reviews the requirements in various pharmacopœias for the resulting product and suggests the use of albumen and calcium carbonate as a precipitating medium. The contribution is followed by the report of a comprehensive discussion.—Ber. d. pharm. Gesellsch., Berl., 1909, v. 19, pp. 212–221.

Bruns, W., considers that the Ph. Germ. IV directions for purifying honey are satisfactory and quite simple.—*Ibid.*, pp. 315–316.

Dieterich and Mix, in a discussion on the valuation of galenical preparations, enumerate the physical and chemical characteristics of purified honey and the several Ph. Germ. IV preparations of honey.—Pharm. Zentralh., 1909, v. 50, p. 730.

Schamelhout, A., states that the honey of rose of the Ph. Fr. V has, in Belgium, been replaced by the sirup of rose.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 69.

For additional references, see Chem. Abstr., Exp. Sta., Rec. and Index Medicus.

#### MENTHA PIPERITA.

Schneider, Albert, points out that the mints thrive well in California. He thinks the grower should also manufacture the oil. The plant requires a moist, rich soil.—Pacific Pharmacist, 1909–10, v. 3, p. 193.

Koch, Franz Otto (D. Seifenf.), discusses the cultivation of peppermint and the production of peppermint oil in Japan, in Germany, and in several sections of the United States.—J. d. pharm. v. Elsass-Lothr., 1909, v. 35, pp. 25–28.

Schamelhout, A., states that in France the leaves and flowering tops of peppermint are employed; in Belgium only the leaves.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 69.

He also notes that the tincture of essence of peppermint of the Ph. Fr. V is a solution of 2 gm. of essence of peppermint in 98 gm. of 90 per cent alcohol. The Belgian preparation is a solution of 1 gm. of essence of peppermint in 99 gm. of 80 per cent alcohol.—*Ibid.*, p. 82.

Ladd, E. F., reports that the samples of spirit of peppermint examined had a content ranging from 9 to 159 per cent, and asks if there is any excuse for putting out products of this kind of such wide variation in strength. Though the product is supposed to be colored with chlorophyll from 10 gm. of peppermint leaves, many of the samples were white or yellow in color showing that none of the leaves had been added.—Proc. North Dakota Pharm. Ass., 1909, p. 69.

*Table showing analytical results reported in connection with spirit of peppermint.*

| Reporters.               | Number of samples— |           | References.   |
|--------------------------|--------------------|-----------|---|
|                          | Examined.          | Rejected. |   |
| Hill, Edward C.....      | 1                  | 1         | Bull. Colorado Bd. Health, 1909, v. 9, No. 4, p. 2            |
| Sayre and Ziefle.....    | 155                | 130       | Bull. Kansas Bd. Health, 1909, v. 5, D. A. 16-23              |
| Woods, Charles D.....    | 14                 | 6         | Rep. Maine Agric. Exper. Sta. (1908), 1910, App. pp. 150, 155 |
| Lythgoe, Hermann C.....  | 69                 | 22        | Rep. Massachusetts Bd. Health (1909), 1910, p. 477.           |
| Halverson, J. O.....     | 1                  | 1         | Rep. Food & Drug. Com. Missouri, 1909, p. 20.                 |
| Fitz-Randolph, R. B..... | 5                  | 1         | Rep. New Jersey Bd. Health (1909), 1910, p. 190               |
| Dunlap, Renick W.....    | 7                  | 4         | Rep. Ohio Dairy & Food Com., 1909, p. 61.                     |

### MENTHA VIRIDIS.

Fyfe, John William, asserts that spearmint possesses medicinal properties which might be employed with advantage in many of the ordinary wrongs of life. It constitutes a useful medicament in the mild forms of fever, and is especially valuable in cases characterized by nausea and vomiting.—Eclectic Rev., 1909, v. 12, p. 178.

### MENTHOL.

Roure-Bertrand Fils (Sc. & Ind. Bull. Grasse, April, 1909, p. 105) call attention to some of the recent literature relating to menthol and more particularly papers by G. Heikel (Amer. Jour. Pharm., 80, 373), and C. Vallée (Ann. phys. Chim. [8], 15, 331), the latter dealing with the action of organic acids on menthyl isocyanate.

Schimmel & Co. (Semi-Annual Report, April, 1909, p. 102), in discussing the Ph. Svec. IX requirements for menthol, point out that the melting point of this article lies between 43.5 and 44.5°; it boils at 217°, when the mercury column of the thermometer is wholly surrounded by the vapors.

Vanderkleed, C. E., quotes Fritsche Bros. to the effect that only the recrystallized brand of menthol answers the official requirements with certainty. Most crude Japanese menthols contain considerable traces of peppermint oil, and this would obscure the results of the various tests.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 129.

Gane, E. H., reports that a dark camphor-like substance, offered as crude menthol, proved to be borneol camphor.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 733.

De Castres, Vidal (*Echo méd. des Cévenenes*), presents a formula for the use of menthol in the treatment of coryza.—*Nouv. remèdes*, 1909, v. 25, p. 407.

#### METHYLIS SALICYLAS.

Düsterbehn points out that the Ph. Fr. V requires that methyl salicylate have a boiling point of 224° C.—*Apoth. Ztg.*, 1909, v. 24, pp. 239–240.

Merck, E. (Darmstadt), notes that the Ph. Fr. V gives the sp. gr. of methyl salicylate as 1.1819 at 16° and in almost all other cases it gives the specific gravity at 15° and only to three decimals.—*Bull. sc. pharmacol., Par.*, 1909, v. 16, p. 551.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 41) report that the commercial article has a purity not lower than 99 per cent as a rule. One sample of inferior quality afforded the figures: Specific gravity, 1.152; optical rotation,  $-0^{\circ} 36'$ ; purity, 72.5 per cent.

Saalbach, Louis, points out that methyl salicylate, though it constitutes somewhat over 99 per cent of oil of birch and oil of wintergreen, is nevertheless inferior to the natural oils as a flavoring agent.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 185.

Schimmel & Co. (*Semi-Annual Report*, October, 1909, p. 128) call attention to a fatal case of poisoning caused by a large quantity of methyl salicylate. (*Pharm. J.* 82 (1909), 749; *Chem. & Drug.* 74 (1909), 816.) The quantity according to the public analyst probably amounts to possibly 300 to 400 grains. The existence of the ester was proved in the stomach, where most of it was found, and also in the urine, liver, and kidneys. J. C. W. Graham, the medical officer, stated that he only knew of three similar cases in literature.

Stanislaus, I. V. S., asserts that methyl salicylate can never replace true oil of wintergreen, and that the difference between the two could be determined by saponification with potassium hydroxide, and obtaining the salt in crystalline form, the character and shape of these crystals determining their source.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 119.

See also under *Oleum Betulæ* and *Oleum Gaultheriæ*.

**METHYLTHIONINÆ HYDROCHLORIDUM.**

Düsterbehn points out that the comprehensive description of methylene blue in the Ph. Fr. V requires that the aqueous solution, diluted until it is transparent, then mixed with several times its bulk of concentrated ammonia, retain its original color when shaken out with ether, while the supernatant ether assumes a reddish-yellow color. The color of aqueous solutions of analogous blue coloring matters under similar treatment assumes a violet shade.—Apoth. Ztg., Berl., 1909, v. 24, p. 239.

Dohme and Engelhardt again point out that the U. S. P. requirement for limit of ash in methylene blue is rather strict. They received samples of this dyestuff which, besides being chemically perfectly pure and having the proper coloring power, yielded an excess of ash on incineration amounting to as much as 1 per cent.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 716.

Kline, C. M., reports ash in 6 samples of methylene blue, as varying from 1.10 to 4.41 per cent; two lots showed the presence of arsenic.—Proc. N. W. D. A., 1909, p. 134.

Francis, J. M., reports that methylene blue as supplied to manufacturers is very frequently inferior in quality. One sample was found to contain 7 per cent of ash, composed mainly of sodium chromate. The trouble lies in the fact that the greatest portion of methylene blue produced is intended solely for dyeing and similar technical purposes.—Proc. Pennsylvania Pharm. Ass., 1909, p. 125.

Pearson, W. A., reports two lots of methylene blue showing the presence of arsenic. Two grammes of one lot contained 0.016 gm. insoluble matter, which is twice the amount allowed by the U. S. P.—*Ibid.*, p. 180.

Vanderkleed, C. E., reports that a sample of methylene blue labeled "zinc free" left a residue of 0.0095 gm. on ignition of 2 gm., and contained heavy traces of zinc; another sample from the same house labeled "medicinal" answered the U. S. P. requirements.—*Ibid.*, p. 125.

Barton, Wilfred M., asserts that the use of methylene blue in gonorrhœa is the last surviving relic of what was termed chromo-therapeutics. It is fast passing into oblivion.—J. Am. M. Ass., 1909, v. 52, p. 1559.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 260–261) calls attention to a report by von Torday and Klier who have found methylene blue to be a very sensitive reaction for bile pigment in the urine.

See also Index Medicus and J. Am. M. Ass.

**MEZEREUM.**

Fussell, M. H., in recommending the deletion of mezereum from the Pharmacopœia, asserts that it is chiefly valuable (?) as an irritant poison.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 204.

Capps, Pratt, McCrae, and Halsey recommend the deletion of mezereum and fluidextractum mezerei from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

**MISTURÆ.****MISTURA ACACIÆ N. F.**

Posey, H. G., asserts that mixture of acacia was official in the Ph. Germ. I but it is not included in the present revision, and as it is of very limited use should be dropped.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 991.

**MISTURA ADSTRINGENS ET ESCHAROTICA N. F.**

Posey, H. G., asserts that the title of Mistura Adstringens et Escharotica should be changed. The precipitate should not be removed.—*Ibid.*, p. 991.

Diehl, C. L., reports from the committee on N. F. pointing out that the precipitate formed when mixing the ingredients of astringent and escharotic mixture is intended to be retained. The mixture should be directed to be shaken. A change in title to "Liquor Cupri et Zinci Acidus; acid solution of copper and zinc" is recommended, retaining the synonym "Villate's solution." Another subcommittee recommends changing the title to "Liquor Cupri et Zinci Acetatis."—*Ibid.*, p. 1078.

**MISTURA AMMONII CHLORIDI N. F.**

Posey, H. G., asserts that pure extract of licorice U. S. P. should be used in the making of mixture of ammonium chloride.—*Ibid.*, p. 991.

Diehl, C. L., reports from the committee on N. F. recommending the use of pure extract of licorice U. S. P. in the making of mixture of ammonium chloride.—*Ibid.*, p. 1078.

**MISTURA CAMPHORÆ ACIDA N. F.**

Diehl, C. L., reports from the committee on N. F. stating that as fuming nitric acid is not recognized in the U. S. P. it is not of importance to make the proposed change.—*Ibid.*, p. 1078.

**MISTURA CHLORALI ET POTASSII BROMIDI N. F.**

Posey, H. G., asserts that Mistura Chlorali et Potassii Bromidi is an excellent formula if properly handled, and should not be altered or modified.—*Ibid.*, p. 991.

Stickney, R. L., scolding the dentists of Alabama for their lack of knowledge of the U. S. P., said: "Let me tell you this, you that have been told that Battles Bromidia is good for so and so, if you want to prescribe it—although I am not in favor of it at all—but if you want to prescribe it, put down Bromidia and then in parentheses put U. S. P. That shows the druggist that you are willing to use the U. S. P. preparations instead of patent medicine."—Proc. Alabama Pharm. Ass., 1909, p. 49.

#### MISTURA FERRI COMPOSITA.

Woodcock, Bertrand J., outlines a method by means of which it is practical to have the compound iron mixture in the British Pharmacopœia ready for dispensing. He keeps on hand a concentrated mixture 1 to 8, minus the ferrous sulphate which is weighed out, dissolved, the concentrated mixture added, and the bottle filled.—Pharm. J., Lond., 1909, v. 28 (82), p. 548.

#### MISTURA GLYCYRRHIZÆ COMPOSITA.

Eberle, E. G., thinks the U. S. P. should describe the physical properties of compound mixture of glycyrrhiza. If made from pure extract of glycyrrhiza, the compound mixture should have no sediment. The pharmaceutical definition of a mixture implies an undissolved portion. He asks whether this preparation should be classed among the mixtures or could it be termed an elixir. He is inclined to agree with Mittelbach that mixtures should not be official preparations, though he would like to see *Mistura Glycyrrhizæ Composita* retained. Even this under present conditions might well find place in the National Formulary.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 819.

The editor of the "Pharmacology" column (J. Am. M. Ass., 1909, v. 53, p. 1930) refers to the statement of the committee of the A. Ph. A. that only the hypercritical will object to the name of "compound mixture of glycyrrhiza," though that mixture contains a small amount of opium. The name sets a bad example at least; if there is enough opium in the mixture to produce its effect it should be indicated in the name; if the amount is too small to produce any effect it should be omitted from the preparation.

#### MISTURA OLEI PICIS N. F.

McElhenie, Thos. D., suggests the use of the pure extract of licorice U. S. P., in place of the purified extract of licorice directed in the National Formulary formula for *Mistura Olei Picis*.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 971.

## MISTURA OLEO-BALSAMICA N. F.

Diehl, C. L., reports from the committee on N. F. presenting a formula for oleo-balsamic mixture corresponding with that of the German Pharmacopœia.—*Ibid.*, p. 1078.

## MISTURA PECTORALIS, STOKES N. F.

Posey, H. G., points out that therapeutic titles are out of place. consequently *Mistura Pectoralis*, Stokes, should be replaced by a title indicative of its composition.—*Ibid.*, p. 991.

Bruder, Otto E., thinks that the title Stokes' expectorant should be changed to compound mixture of senega, on the principle that therapeutic phrases and names of persons should find no place in an official preparation.—*Ibid.*, p. 967. Also, Bull. Am. Pharm. Ass., 1909, v. 4, p. 232.

Weinstein, Abraham, thinks that much trouble would be avoided if the alcoholic fluid extract of squill was directed to be used in official preparation.—*Ibid.*, p. 967. Also, Bull. Am. Pharm. Ass., 1909, v. 57, p. 1132.

## MISTURA RHEI ET SODÆ.

Fussell, M. H., thinks that mixture of rhubarb and soda should be relegated to the National Formulary.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 205.

Taylor, Augustus Carrier, points out that *mistura rhei composita* N. F., and *mistura rhei et sodæ* U. S. P., differ very little in combination. We can get along without the N. F. formula.—Pharm. Era, 1909, v. 41, p. 493.

McElhenie, T. D., presents a formula for an improved mixture of rhubarb and soda in which the glycerin is eliminated.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 235.

## MISTURA SODÆ ET MENTHÆ N. F.

Cook, E. Fullerton, reports that one writer strongly urges that the use of peppermint water be restored in place of the present spearmint water. Another suggestion reported is that instead of using spearmint water why not order 2 cc. of oil of spearmint and 15 gm. of purified talc in the present formula and modify the directions accordingly.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 961.

## MISTURA SPLENETICA N. F.

Posey, H. G., thinks that the title for *Mistura Splenetica* should be changed.—*Ibid.*, p. 992.

## MISTURA SULPHURICA ACIDA N. F.

Diehl, C. L., reports from the committee on N. F. recommending a change in title to "Spiritus Acidi Sulphurici; Spirit of Sulphuric Acid" and the omission of the synonym "Mistura Sulphurica Acida (G. P.)."—*Ibid.*, p. 1079.

## MORPHINA.

Knorr, Hörlein, and Staubach report observations on the action of acetic acid anhydride and zinc powder on morphine and codeine.—*Ber. d. deutsch. chem. Gesellsch., Berl.*, 1909, v. 42, p. 3514.

Pouget (Rép. de Pharm., 1909, p. 265) in a discussion of the color reactions of phenols with formaldehyde-sulphuric acid, points out that morphine gives a reddish-purple color.—*Merck's Rep.*, 1909, v. 18, p. 272.

Bertrand and Meyer discuss the chemistry of pseudomorphine.—*Compt. rend. Acad. d. sc., Par.*, 1909, v. 148, pp. 1681-1683. See also, *Bull. sc. Pharmacol., Par.*, 1909, v. 16, pp. 445-448.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 41) report the strength of various morphine salts containing 95 to 99.7 per cent of the pure salt.

Smith, Otis W., asserts that morphine sulphate is the most used, the acetate but seldom, and the hydrochloride still less.—*Proc. Missouri Pharm. Ass.*, 1909, p. 113.

Mueller, F. H. (*Berl. klin. Wchnschr.*, 1908, v. 45, No. 49) declares that nearly every case of morphine addiction is traceable to medical advice in some chronic affection, and he urges that the patient should never be allowed to know the nature of the drug with which pain is alleviated. Morphine should be a last resort and should be given internally.—*J. Am. M. Ass.*, 1909, v. 52, p. 336.

An editorial note (*Lancet* 1909, v. 176, p. 56) calls attention to the presence of morphine in antipium "cures" and gives a tabulated statement of the results of analyses made in the *Lancet* laboratory.

An editorial (*Ibid.*, 1909, v. 177, p. 407) discusses the re-education of the will in the treatment of drug habits, and calls attention to the work of W. Oscar Jennings.

Silkworth, W. Duncan, makes a further report on the jungle plant (*Combretum sundaicum*) in morphine addiction, with notes of seven cases.—*N. York, M. J.*, 1909, v. 89, p. 115.

Vargas, Martinez (*Gac. Med. Catalana*), contributes a note on the use of morphine in the dyspnoea of croup.—*Rev. Med. Cir. Habana*, 1909, v. 14, pp. 132-135.

Zimmermann (*Deutsche Tier. Woch.*) discusses the action of morphine in veterinary practice.—*Vet. J. Lond.*, 1909, v. 65 (new series, v. 16), p. 293.



Waugh, William, discusses the use and abuse of morphine, and points out that when the physician was confined to the older forms of crude vegetable preparations, there was some reason for the general use of morphine, but that at best opium is only a palliative and of questionable utility in the long run.—*Merck's Arch.*, 1909, v. 11, pp. 106-108.

Albanese, Manfredi, presents a contribution on the behavior of morphine in the animal body.—*Arch. farmacol. sper.*, 1909, v. 8, pp. 307-315.

For additional references, on the pharmacology and use of morphine, see *Jahresb. ü. Tier-Chem.*; *Biochem. Centralbl.*; *Chem. Abstr. Am. Chem. Soc.*; and *Index Medicus*.

#### **MORPHINÆ ACETAS.**

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 41) report morphine acetate containing from 97 to 99 per cent of the pure salt.

#### **MORPHINÆ HYDROCHLORIDUM.**

Runne, E., discusses the titration of morphine hydrochloride for the purpose of determining the acid content, using phenolphthalein and Porrier's blue as indicators. He concludes that because of the double nature of morphine, as a base, and phenol it would be difficult to find a suitable indicator.—*Apoth. Ztg.*, Berl., 1909, v. 24, p. 663.

Lesure, André, presents a paper on the sterilization of morphine hydrochloride.—*J. d. pharm. et d. chim.*, Par., 1909, v. 30, pp. 337-345.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 41) report morphine hydrochloride containing from 95 to 99.7 per cent of the pure salt.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 263-264) reviews some of the recent literature relating to the use of morphine hydrochloride.

#### **MORPHINÆ SULPHAS.**

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 41) report morphine sulphate containing from 98 to 99.4 per cent of the pure salt.

Dunlap, Renick W., reports 17 samples of morphine sulphate examined, 4 not passed.—*Rep. Ohio Dairy & Food Com.*, 1909, p. 60.

Taylor, Augustus Carrier, points out that the fact that Magendie's solution of morphine requires the addition of salicylic acid to preserve it should be enough to condemn the formula. The hypodermic tablet has displaced such solutions, and even if we need a hypodermic solu-

tion of morphine, it should be, and can be, freshly prepared, and the doctor should state the strength desired.—*Pharm. Era*, 1909, v. 41, p. 494.

Diehl, C. L., reports from the committee on N. F. recommending the deletion of both formulas for sirup of morphine sulphate.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1088.

Taylor, Augustus Carrier, asserts that sirup of morphine sulphate N. F. is not entitled to a place in the Formulary.—*Pharm. Era*, 1909, v. 41, p. 494.

#### NONOFFICIAL COMPOUNDS.

Capps, Pratt, McCrae, and Halsey assert that diacetyl-morphine is extensively used and worthy of being added to the U. S. P.—*J. Am. M. Ass.*, 1909, v. 53, p. 792.

Riedel's *Berichte* (Berlin, 1909, p. xlii) presents a monograph on diacetyl-morphine, including an enumeration of its properties and a number of tests. The melting point of this article is given as 171° to 173°.

E. Merck's Annual Report (1909, Darmstadt, 1910; v. 23, pp. 228–229) quotes Hönigschmied (*Allgem. Wien. med. Ztg.*, 1909, No. 7) who asserts that even after prolonged use of heroin no habituation is set up, and that patients although they are able to take larger doses of the drug are able to do without it at any time.

Riedel's *Berichte* (1909, p. xxiv) presents a monograph for ethyl-morphine hydrochloride, its properties, and tests. It is described as being insoluble in ether and in chloroform and having a melting point of from 119° to 123°.

Harbert, J. P., finds that dionin relieves the pain in various forms of iritis, and associated with atropine it increases the mydriatic action. While not a local anæsthetic it relieves deep-seated pain. The vascular and lymphatic circulation of the eye are stimulated by this agent and marked dilatation of the vessels occurs. Hence it is of value for the absorption of pupillary exudates and recent corneal opacities.—*Eclectic M. J.*, Cincin., 1909, v. 69, p. 350.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 185–187, 228–229) reviews some of the recent literature relating to dionin.

For additional references, on the pharmacology and use of non-official compounds related to morphine, see *Index Medicus*.

#### MOSCHUS.

Lueders, George, discusses the various kinds of musk available, the origin of this drug, the method of marketing, and the adulterations that have been found.—*Western Druggist*, Chicago, 1909, v. 31, pp. 332–338.

Roure-Bertrand Fils (Sc. & Ind. Bull. Grasse, April, 1909, p. 60) discuss some of the economic questions regarding musk, and point out that the new crop of musk arrived about the time of the festivities of the Chinese New Year's day. A good quality of musk is worth at the present time 1,800 francs per kilo in the crude state, or about 2,400 francs after the goods have been picked and trimmed.

Schimmel & Co. (Semi-Annual Report, April, 1909, p. 104) discuss the musk trade and give a table showing the exports from Shanghai to the principal countries for the year 1908.

Cook, E. Fullerton, reports that the finished tincture of musk is entirely satisfactory; the only difficulty is in obtaining an authentic and active drug.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1003.

### MUCILAGINES.

For comments on official mucilages see under respective drug headings.

#### MUCILAGO CHONDRI N. F.

Diehl, C. L., reports from the committee on N. F. recommending the deletion of the note and an alternate formula for mucilage of Irish moss.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1079.

#### MUCILAGO DEXTRINI N. F.

Diehl, C. L., reports from the committee on N. F. recommending the deletion of mucilage of dextrin.—*Ibid.*, p. 1079.

#### MUCILAGO SALEP N. F.

Diehl, C. L., reports from the committee on N. F. recommending the dismissing of mucilage of salep N. F.—*Ibid.*, p. 1079.

### MYRISTICA.

Holmes, E. M., discusses the nutmegs of commerce, and presents a number of illustrations showing the true and false nutmeg.—Pharm. J., Lond., 1909, v. 28 (82), pp. 419-420; 459-461.

Heckel, Edouard, describes and illustrates two new, wild, nutmegs from Madagascar.—Répert. d. pharm., Par., 1909, v. 21, pp. 49-57.

Rusby, H. H., asserts that nutmegs are hardly ever seen which do not contain a little mold in the cavity at the end. The description should make it clear that this is not inadmissible.—Midl. Drug., 1909, v. 43, p. 691. See also Pharm. Era, 1909, v. 42, p. 634.

Holmes, E. M., in discussing the materia medica of Perak, points out that the sample of *Myristica fragrans* Houtt., consists of the nutmeg in the shell, in which form it is usually preferred in the East,

as it thus retains its odor and is protected from insects. (The process of liming nutmegs was originally adopted by the Dutch with the view of preventing germination and so obtaining a monopoly of the spice.) The nutmegs are of the ordinary type but rather small. They are "mixed with milk and applied for roughness of the tongue in infants."—Proc. Am. Pharm. Ass., 1909, v. 57, p. 754.

Woods, Charles D., defines nutmeg as the dried seed of the *M. fragrans* Houtt. deprived of its testa, with or without a thin coating of lime, which contains not less than 25 per cent of nonvolatile ether extract, not more than 5 per cent of total ash, not more than 0.5 per cent of ash insoluble in hydrochloric acid, and not more than 10 per cent of crude fiber.—Rep. Maine Agric. Exper. Sta. (1909), 1910, App. p. 118.

Gladhill, James W., presents a description of Bombay mace, *M. malabarica*, and outlines methods for its detection when used as an adulterant.—Proc. Pennsylvania Pharm. Ass., 1909, p. 331.

Kline, C. M., reports nutmegs decomposed, wormeaten, and shriveled at the port of Philadelphia.—Proc. N. W. D. A., 1909, p. 137.

Reekie, John S., reports a case of nutmeg poisoning, with recovery. A freshly ground nutmeg had been taken to check profuse and irregular menstruation.—J. Am. M. Ass., 1909, v. 52, p. 62.

Gibbins, K. Mayoh, reports a case of a man, aged 22, poisoned by nutmeg, as a result of having eaten a pudding flavored with about a quarter of a moderately sized nutmeg; together with two similar cases reported in barmaids.—Britt. M. J., 1909, v. 1, p. 1005.

### MYRRHA.

Francis, J. M., reports that myrrh, particularly powdered myrrh, shows a tendency to run somewhat low in quality. More specific data are required in the Pharmacopœia regarding this article to secure a better quality of drug.—Proc. Pennsylvania Pharm. Ass., 1909, p. 124.

The committee on drug market reports myrrh which was 36.9 to 44.7 per cent soluble in alcohol.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 734.

The Belgian inspectors of pharmacies report that myrrh is often impure. It is mixed with chestnuts, Senegal gum, and bdellium.—J. d. pharm. d'Anvers, 1909, v. 65, p. 551.

Cook, E. Fullerton, thinks the formula for tincture of myrrh entirely satisfactory.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1003.

The Belgian inspectors of pharmacies report that tincture of myrrh rarely has the dry extract content required by the Pharmacopœia.—J. d. pharm. d'Anvers, 1909, v. 65, p. 626.

Schamelhout, A., states that the analytical laboratory examined one sample which showed only 0.85 per cent dry residue in place of 5 per cent minimum.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 207.

#### NAPHTHALENUM.

Sargeant, F. Pilkington, asserts that naphthalene is the basis of nearly all the proprietary substances used for soil fumigation. It is also used as a general insectifuge and as an emulsion with paraffin and soap as "paranaph."—Pharm. J., Lond., 1909, v. 29 (83), p. 236. See also Drug Topics, New York, 1909, v. 24, p. 356.

#### NITROUS OXIDE.

Prinz, Hermann, recommends the admission to the Pharmacopœia of nitrous oxide gas in its pure state or combined with oxygen as by far the most used general anæsthetic in dental surgery. On account of its relative safety and quick action, it is especially adapted for those cases of minor surgery in which a general anæsthetic is indicated.—J. Am. M. Ass., 1909, v. 53, p. 796.

Teter, Charles K., reports 13,000 successful anæsthetizations by nitrous oxide and oxygen, with some practical comments on apparatus, technique, dangers and advantages.—*Ibid.*, pp. 448-454.

#### NUX VOMICA.

Rusby, H. H., thinks that the alkaloidal requirement for nux vomica should be raised.—Midl. Drug., 1909, v. 43, p. 691. See also Pharm. Era, 1909, v. 42, p. 634.

Planchon reports on a new adulterant found in nux vomica, consisting of the raspings of vegetable ivory, *Phytelephas macrocarpa*, which he describes and illustrates.—Répert. d. pharm., Par., 1909, v. 21, pp. 241-250.

Juillet, A., discusses the adulteration of powdered nux vomica and presents several illustrations showing the structural characteristics of powdered nux vomica, and the general appearance of powdered nux vomica adulterated by means of olive pits.—Ann. d. chim. analyt., Par., 1909, v. 14, pp. 261-265. See also Répert. d. pharm., Par., 1909, v. 21, pp. 148-152.

Planchon and Juillet report finding powdered nux vomica adulterated with the seeds of soursop (vegetable ivory), and present several illustrations showing the structural characteristics of the adulterant.—Ann. d. chim. analyt., Par., 1909, v. 14, pp. 296-300.

Holmes, E. M., discussing the materia medica of Perak, asserts that the drug called "Neti Koteh" (Ettik-kottai, Tamil) is the seeds of *Strychnos nux vomica* Linn., which are of small form. They are labeled: "If three seeds are consumed in 48 days, the body becomes innocuous to the attacks of any poisonous animal."—Proc. Am. Pharm. Ass., 1909, v. 57, p. 755.

Tunmann, O., reports observations on the alkaloids contained in germinating seeds of *Strychnos nux vomica*, and concludes that the embryo of the seed contained only brucine and that strychnine which was contained in the endosperm only in the cell plasma of the cell content appears to act as a protection for the growing plant.—Arch. d. Pharm., Pharm., Berl., 1910, v. 248, pp. 644-657.

Leuchs and Geiger, in an additional contribution on strychnos-alkaloids, discuss the reactions of brucinonic acid and the cleavage of the brucine molecule.—Ber. d. deutsch. chem. Gesellsch., Berl., 1909, v. 42, pp. 770-777.

Leuchs and Geiger, in a further contribution on strychnos alkaloids, discuss the production of brucine-sulphonic acid and the cause for the brucine-nitric acid reaction.—*Ibid.*, pp. 3067-3075.

Leuchs and Weber discuss the cleavage of brucinonic acid and of brucinolone.—*Ibid.*, pp. 3703-3710.

Mossler, Gustav, reports observations on an alkaloidal base, isomeric with brucine, to which he has given the name allobrucine.—Pharm. Post, Wien, 1909, v. 42, pp. 822-823.

Weigel, G., points out that the minimum standard of 2.5 per cent of total alkaloids, prescribed by many pharmacopœias, is not attained by much of the undried commercial drug. By the Keller-Fromme method of determination, the percentage of alkaloids ranges from 2.1 to 2.25.—Pharm. Zentralh., 1909, v. 50, pp. 783-784.

Lyons, A. B., points out that only the Ph. Brit. and the U. S. P. prescribe a strychnine standard for *nux vomica*, and asserts that possibly it is not worth while to complicate this assay thus.—Proc. VIIth Internat. Congress App. Chem., Sec. VIIIb, Pharmacy, 1909, London, 1910, p. 109.

Hunt, Reid, points out that the question as to whether preparations of *nux vomica* should be judged by the percentage of strychnine, or by that of the total alkaloids, is largely a medical problem and should be decided by medical men.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 10.

Lyons, A. B., discusses the assay of *nux vomica* and expresses the belief that the strychnine standard is the only rational one. The question is still *sub judice*.—Am. Druggist, N. Y., 1909, v. 55, p. 368.

Pinchbeck, G., reports some experimental work on the separation of strychnine from brucine.—Year-Book of Pharmacy, Lond., 1909, pp. 327-331. See also Pharm. J., Lond., 1909, v. 29 (83), pp. 144-145.

Squire and Caines, in commenting on the standardization of *nux vomica*, point out that in view of the adoption of a total alkaloids standard by all recently published pharmacopœias, it is highly desirable that there should be some adequate means of comparing the strengths of the British and American preparations with those of other pharmacopœias.—Chem. & Drug., Lond., 1909, v. 74, p. 877.

Roberts, John G., points out that, in the assay of nux vomica, the most difficult part of the operation is the oxidation of the brucine. He suggests that the temperature at which the oxidation is to be conducted should be fixed.—*Am. J. Pharm.*, Phila., 1909, v. 81, p. 121. Also *Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 81, and *Merck's Rep.*, 1909, v. 18, p. 204.

Lyons, A. B., discusses the official assay of nux vomica, and suggests a number of changes.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 808. See also *Am. Druggist*, N. Y., 1909, v. 54, p. 128.

Dohme and Engelhardt assert that the assay method of the U. S. P. is not entirely satisfactory. The results are in most cases too high and differ widely in the hands of different workers. They report having tried the different modifications offered during the past few years, but have not had good results as yet.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 884.

Dunn, John A., suggests a slight modification of the U. S. P. assay method for extract of nux vomica and recommends the use of an ether-chloroform mixture in place of chloroform for the assay of fluid extract of nux vomica, *Ibid.*, p. 952.

Kottenhoff, G., finds the Ph. Helv. process for the estimation of the alkaloids of nux vomica much better than that of the Ph. Belg.—*Bull. Soc. roy. d. pharm.*, Brux., 1909, v. 53, p. 135.

Caesar & Loretz (*Geschäfts-Ber.*, 1909, pp. 109-110) describe the Keller-Fromme method for the assay of nux vomica, and point out that the majority of recent pharmacopœias require a total of 2.5 per cent of total alkaloids and that the U. S. P. requires 1.25 per cent of strychnine.

Peters, W., gives the moisture content of nux vomica as 9.99 per cent; the ash content of the air-dry drug as 1.84 per cent; the ash content of the dried drug as 2.04 per cent, and the color of the resulting ash as light brown.—*Apoth. Ztg.*, Berl., 1909, v. 24, p. 538. See also *Schweiz. Wchnschr. f. Chem. u. Pharm.*, Zürich, 1909, v. 47, p. 663.

Table showing results of assays of nux vomica reported during 1909.

| Reporters.                 | Number of samples— |                 | References.   |
|----------------------------|--------------------|-----------------|---|
|                            | Examined.          | Below standard. |   |
| Dohme and Engelhardt.....  | 10                 | 2               | <i>Proc. Am. Pharm. Ass.</i> , 1909, v. 57, p. 717.       |
| Patch, E. L.....           | 11                 | 7               | <i>Ibid.</i> , p. 734.                                    |
| Pearson, W. A.....         | 1                  | 1               | <i>Proc. Pennsylvania Pharm. Ass.</i> , 1909, p. 180      |
| Sayre and Ziesle.....      | 2                  | 1               | <i>Bull. Kansas Bd. Health</i> , 1909, v. 5, D. A., 16-23 |
| Dunlap, Renick W.....      | 6                  | 4               | <i>Rep. Ohio Dairy &amp; Food Com.</i> , 1909, p. 60.     |
| Vanderkleed, C. E.....     | 13                 | 3               | <i>Proc. Pennsylvania Pharm. Ass.</i> , 1909, p. 129      |
| Evans Sons Lescher & Webb. | 5                  | 0               | <i>Analytical Notes</i> , 1909, p. 41.                    |

Koeh, Christopher, reports extract of *nux vomica* with a variation from 13 per cent below standard to 44 per cent above. He quotes a pharmaceutical chemist who believes that a permissible variation of 4 per cent should suffice, with a preparation of the nature of *nux vomica*.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 745-746.

Lehn & Fink (Annual Report for 1909, p. 8) discuss the U. S. P. method for making extract of *nux vomica* and point out that it is not applicable to the production of this extract on a large scale; a more practical method is outlined.

The Belgian inspectors of pharmacies report extract of *nux vomica* often incompletely deprived of fat. There is sometimes failure to keep it in drying bottles. The moist extract is still met with.—J. d. pharm. d'Anvers, 1909, v. 65, p. 628.

Schamelhout, A., states that the analytical laboratory examined one extract of *nux vomica* which had the desired alkaloidal strength, but contained 2 per cent of fat.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 271.

Caldwell, Paul, asserts that fluid extract of *nux vomica* should be dropped, as the alkaloid, strychnine, is used instead.—Bull. Pharm., 1909, v. 23, p. 115.

Thurston, Azor, reports on three samples of fluid extract of *nux vomica* which were assayed for strychnine, and contained 1.26, 0.82, 1.05 gm. of strychnine per 100 cc. of the fluid extract.—Proc. Ohio Pharm. Ass., 1909, p. 65. See also Midl. Drug., 1909, v. 43, p. 454.

Cook, E. Fullerton, calls attention to the fact that tincture of *nux vomica* has been largely criticized, due to the variation in the appearance of the finished product. Almost every sample of extract which is used will yield a differently colored tincture. It has been repeatedly suggested that it be made directly from the drug to secure a uniform appearance. The merit of the U. S. P. process lies in the ease with which uniformity in strength may be secured.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1008.

Beringer, George M., asserts that the tincture of *nux vomica* made from the drug is more nearly uniform in color, is clear, and does not precipitate.—*Ibid.*, v. 820.

Schamelhout, A., notes that the French tincture of *nux vomica* is prepared by the solution of extract of *nux vomica* in alcohol, while the Belgian preparation is made by percolation in accordance with the provisions of the international conference.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 83.

Thurston, Azor, reports on 3 samples of tincture of *nux vomica* examined for strychnine. They assayed 0.08, 0.102, 0.079 gm. per 100 cc. of the tincture. He thinks that this preparation as sold in Ohio is quite satisfactory.—Midl. Drug., 1909, v. 43, p. 454. See also Proc. Ohio Pharm. Ass., 1909, p. 65.



Hill, Edward C., reports 4 samples of tincture of *nux vomica* examined, 1 of which was not up to standard.—Bull. Colorado Bd. Health, 1909, v. 9, No. 1, p. 2.

The Belgian inspectors of pharmacies report that certain samples of tincture of *nux vomica* are much too strong in alkaloid. The amount of extractive residue is too high. They have found certain tinctures which assayed 0.30 to 0.45 per cent alkaloids.—J. d. pharm. d'Anvers, 1909, v. 65, p. 625. See also Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 272.

Beringer, George M., in a report on further work on fluidglycerates presents a formula for fluidglycerate of *nux vomica*.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1010. See also Am. J. Pharm., Phila., 1909, v. 81, p. 476.

Spencer, George W., asserts that *nux vomica* has an especially elective action upon the cerebro-spinal system and through that to the sympathetic system, which explains the especially wide extent of its action.—J. Am. Inst. Homœop., 1909, v. 1, p. 515.

Felter, H. W., asserts that *nux vomica* is a drug occasionally required in summer diarrhœas of children. The cases are those of free choleraic discharges, without pain or effort. The passages are odorless and are often passed apparently without knowledge of the patient. Here small doses will prove a good stimulant.—Eclectic M. J., Cincin., 1909, v. 69, p. 451.

Wilks, Samuel, has been in the habit of giving *nux vomica*, largely combined with a mineral acid for indigestion and gastric weakness, with most favorable results. Strychnine he has found to be less manageable, and he therefore only occasionally uses it.—Folia Therap., Lond., 1909, v. 3, p. 102.

Sargeant, F. Pilkington, points out that the seeds of *Strychnos nux vomica* in powder enter into the composition of certain preparations for the destruction of rats and moles.—Pharm. J., Lond., 1909, v. 29 (83), p. 237. Also Drug Topics, New York, 1909, v. 24, p. 356. See also under Strychnina.

#### OLEATA.

Mittelbach, William, comments on the official oleates and presents several suggestions for their improvement.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 816.

#### OLEATUM HYDRARGYRI.

Damtoft, K. J., presents a formula for improved oleate of mercury which yields a preparation that he asserts is stable under varying conditions of temperature.—Merck's Rep., 1909, v. 18, p. 269.

Mittelbach, William, asserts that the formula for oleate of mercury is a good formula and readily followed.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 816.

**OLEATUM ZINCI N. F.**

Diehl, C. L., reports from the committee on N. F. recommending a change in title to "Zinci Oleas." The use of zinc sulphate instead of zinc acetate, since it is a much more commonly used salt; soap of definite moisture content, to replace the solution of sodium oleate; and a definite temperature to be recommended for the solutions to be precipitated, are also recommended. The proposed formula is presented.—*Ibid.*, p. 1080.

Cook and Dosch discuss the N. F. formula for zinc oleate and present a formula in which castile soap, dried and powdered, is used in place of the solution of sodium oleate.—Proc. Pennsylvania Pharm. Ass., 1909, pp. 340-342.

**OLEATUM ACONITINÆ N. F.**

Diehl, C. L., reports from the committee on N. F. recommending the use of equal parts of olive oil and oleic acid.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1080.

**OLEORESINÆ.**

Dunn, John A., points out that experiments have proven that ether gives a much smoother and nicer oleoresin. There is no more trouble in handling ether than there is in handling the official acetone, and, now that the cost has fallen to about one-third what it was at the time of its abandonment in favor of acetone, it might be worth while to consider whether the U. S. P. should not go back to the use of ether.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 949.

**OLEA INFUSA N. F.**

Posey, H. G., asserts that the N. F. general formula for infused oils is an improvement over that of the Ph. Germ., in that the herb is macerated with ammonia and alcohol before infusing in the oil. The use of a mixture of cotton seed and lard oils, however, is to be strongly condemned, as it is a well-known fact that such oleaginous mixtures are prone to rancidity. The last paragraph of the "note" appended to the formula should be omitted, as it is manifestly unfair to the Ph. Germ. to say the above process is to be used for the preparation of oleum hyoscyami, Ph. Germ.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 992.

Diehl, C. L., reports from the committee on N. F., pointing out that the Ph. Germ. recommends olive oil for oleum hyoscyami, and it is believed that this oil possesses the essential qualifications of blandness, keeping quality, absorption, power to dissolve, miscibility, etc. The attempt to select a cheaper, yet bland, oil is evidenced

in the French Codex, where poppy oil is directed, and in the Ph. Helv., where sesame oil is directed. The Ph. Svec. follows the Ph. Germ. so far as the selection of the oil is concerned. It is believed that this will be far more acceptable from the standpoint of purity and keeping than the present N. F. mixture of lard and cotton seed oils. The proposed formula is presented.—*Ibid.*, p. 1079.

#### OLEA PINGUA.

Hepburn, Joseph Samuel, presents a critical study of the natural changes occurring in fats and oils. The review includes a consideration of the changes brought about by various organisms, enzymes, and the action of atmospheric gases.—J. Frankl. Inst., 1909, v. 168, pp. 365–384, 421–456.

Lewkowitsch, J., in a monograph (included as Supplement with Bull. Soc. chim., Par., 1909, v. 5, p. xlv) presents a comprehensive review of the chemistry of fatty bodies and a proposed classification of the various bodies into (1) oils and fats of vegetable origin, (a) vegetable oils, (b) vegetable fats; (2) oils and fats of animal origin, (a) animal oils, (b) animal fats.

Tingle, J. Bishop, reviews some of the recent investigations of fats and oils.—J. Ind. Eng. Chem., 1909, v. 1, p. 736.

Klimont and Meisels report observations on the occurrence of mixed glycerides in natural fats.—Monatsh. f. Chem., Wien, 1909, v. 30, pp. 341–346.

Sage, C. Edward, reviews the descriptions and tests for the fixed oils which are included in the Ph. Brit., and points out that for many years the text of the Pharmacopœia which deals with oils and essential oils has been out of date; in fact the tests prescribed for most of the oils are hopelessly inadequate or else misleading.—Pharm. J., Lond., 1909, v. 29 (83), pp. 760–767.

An editorial (*Ibid.*, p. 753) comments on the paper on vegetable oils of the Pharmacopœia by Sage, and indorses many of the suggestions made by him.

Bryan, T. J., presents the referee report on fats and oils and records the cooperative work done on 10 samples of mixtures of vegetable and fish oils.—Proc. Ass. Off. Agric. Chem., 1909, 26th Ann. Conv., pp. 120–122 (Bull. Bur. Chem., U. S. Dept. Agric., 1910, No. 132).

Tolman, L. M., reports progress for the committee on the unification of the methods of analysis of fats and oils.—*Ibid.*, pp. 166–167.

Tatlock and Thomson discuss the value of the Polenske test in the analysis of oils and fats, and report a number of experiments giving their analytical results in the form of tables.—J. Soc. Chem. Ind., 1909, v. 28, pp. 69–72.

Léger, E., presents some observations on the analysis of simple oils that are of interest to the pharmacist.—Proc. VIIth Internat. Congress App. Chem., Sec. VIIIb, Pharmacy, 1909, London, 1910, pp. 57–59. See also *J. d. pharm. et d. chim., Par.*, 1909, v. 30, pp. 17–26, 68–73; and *J. d. pharm. d'Anvers*, 1909, v. 65, pp. 811–826.

Zetzsche, Franz, discusses the detection of fats or fatty oils, also of mineral and resin oil.—*Pharm. Zentralh.*, 1909, v. 50, pp. 681–684.

Imbert and Durand discuss the furfural reaction for the detection of sesame oil.—*Ann. d. Falsif.*, 1909, v. 2, pp. 317–319.

Levi and Manuel find that the chloroform, which is both expensive and easily decomposed, may be replaced by carbon tetrachloride (or penta-chlorethane) as a solvent in the determinations of the iodine number of oils. The results are practically identical.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 348.

Borde, F., discusses the employment of antipyrine in the determination of the iodine index of fixed and of volatile oils.—*Bull. sc. pharmacol., Par.*, 1909, v. 16, pp. 654–656.

Remington and Lancaster report on the comparative examination of the halogen absorption of oils by the methods of Hubl, Wijs, Hanus, and McIlheney.—*Pharm. J., Lond.*, 1909, v. 29 (83), pp. 146–147; also *Year-Book of Pharmacy, Lond.*, 1909, pp. 337–343.

Heiduschka and Rheinberger discuss the application of the bromine temperature test to fats and oils. They conclude that the iodine number of fats can be sufficiently well determined by this method.—*Pharm. Zentralh.*, 1909, v. 50, pp. 544–545.

Hoton, L., presents a paper on the acetic index in connection with the detection of adulteration in butter, and gives the figures for cotton, sesame, arachis, lard, and other oils.—*J. d. pharm. d'Anvers*, 1909, v. 65, pp. 919–945.

Rupp and Lehmann discuss the determination of the saponification number of fatty oils.—*Apoth. Ztg., Berl.*, 1909, v. 24, pp. 972–973.

Kellner, J., presents a contribution to the theory of hydrolysis of fats and oils.—*Chem. Ztg., Cöthen*, 1909, v. 33, p. 453 ff.

Paal and Roth report observations on the catalytic action of the colloidal metals of the platinum group on the reduction of fats and oils.—*Ber. d. deutsch. chem. Gesellsch., Berl.*, 1909, v. 42, pp. 1541–1553.

The Belgian inspectors of pharmacies state that the requirement of the Pharmacopœia, that the nature of the oil should be indicated on the container, conforming in this with the food regulations, is frequently neglected.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 551.

Ulzer and Pastrovich review the literature relating to fats and waxes, appearing in the year 1908.—*Chem. Ztg., Cöthen*, 1909, v. 33, pp. 1336–1339; 1345–1347.

May, Otto B., discusses the utilization of magnesia in the preparation of oils in powder form.—*J. Soc. Chem. Ind.*, 1909, v. 28, p. 826. Also *Pharm. J., Lond.*, 1909, v. 29 (83), p. 296.

#### OLEA VOLATILIA.

Schamelhout, A., commenting on the description of volatile oils, proposed by the third section of the Second International Congress for the Repression of Adulteration, says that these definitions have been adopted at the Geneva congress. One understands very well that it is not admissible to give the name essential oil to artificial chemical products as is done by the Ph. Belg.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 177.

He states that the Second International Congress (Paris, 1909) adopted the following:

“It is forbidden to attribute the denomination essential oil to definite chemical products extracted from essential oils or prepared synthetically.”

The Geneva Congress adopted the following definition:

“The essential oils are the exclusive product of the extraction of the aromatic principles contained in the substances of vegetable origin of which they bear the name.”—*Ibid.*, p. 334.

Dupont, Justin, reports and discusses the definitions for essential oils that were definitely adopted by the Second International Congress for the Suppression of Adulterations.—*Sc. & Ind. Bull. Roure-Bertrand Fils, Grasse*, October, 1909, pp. 3-18.

Umney, John C., in a discussion of the adoption of the international standards for drugs proposed by the White Cross Society of Geneva, comments on the requirements for essential oils and agrees with the assertion that fixing too absolutely the characters of purity might be against the object which the congress has in view—to detect the adulterator and to protect the honest trader.—*Chem. & Drug., Lond.*, 1909, v. 75, p. 580.

Requirements for essential oils finally agreed to at the White Cross Congress are presented in abstract.—*Ibid.*, p. 681. See also *Bull. sc. pharmacol., Par.*, 1909, v. 16, p. 236 and pp. 359-361.

Villere, Rene L., presents some observations on the preservation of volatile oils, and outlines his method of keeping them. He suggests keeping the bottles always filled to the cork. Whenever oil is taken from the bottle an equivalent amount of water is put in to replace the oil taken out. The oil floating on top of the water makes it easy to pour out of the bottle when necessary.—*N. A. R. D. Notes*, 1909, v. 8, pp. 761-762.

LaWall, Charles H., presents notes on a number of the U. S. P. volatile oils, and points out that there is no class of official substances

about which the pharmacist is more at the mercy of the manufacturer than he is with volatile oils.—*Am. J. Pharm.*, Phila., 1909, v. 81, pp. 543-545. See also *Proc. New Jersey Pharm. Ass.*, 1909, pp. 102-104.

Roure-Bertrand Fils (*Sc. & Ind. Bull. Grasse*, April, 1909, pp. 42-46) discuss the suppression of fraud so far as essential oils are concerned and point out that with products of this kind chemical control is extremely difficult.

Dohme and Engelhardt point out that the next edition of the U. S. P. should provide for tests for several oils which are used extensively, among others oil of bergamot, oil of sassafras, oil of origanum, and oil of *pinus sylvestris*.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 718-719.

v. Soden, Hugo, presents a number of suggestions regarding the official volatile oils. Among other recommendations he suggests that the monographs on volatile oils be distinct from those on fatty oils and be accompanied by a short general description, which he outlines. He also thinks that the determination of the boiling point of volatile oils might be omitted, as the amount of substance required is rather greater than is justified by the result.—*Pharm. Ztg.*, Berl., 1909, v. 54, pp. 249-251.

Schimmel & Co. (*Semi-Annual Report*, October, 1909, p. 133) call attention to the suggestions made by H. v. Soden for the elaboration of the descriptions and tests for volatile oils and give references on matters in which there are discrepancies between v. Soden's findings and their own.

They also (*Ibid.*, April, 1909, p. 99) point out that in their previous April report they expressed themselves in detail on the subject of the requirements fixed in the British Pharmaceutical Codex, published in the year 1907, for essential oils and their constituents. A similar review has now been published by C. T. Bennett (*Pharm. J.*, Lond.). Without entering into further details they content themselves with the observation that their opinions differ from those of Bennett on many points, and that they maintain their former criticism in every particular. They recommend that in judging oils their observations should be taken as the basis, as otherwise erroneous conclusions might perhaps be arrived at concerning this or that oil.

The same firm (*Ibid.*, April, 1909, p. 99 ff.) discusses the volatile oils included in the new *Ph. Svec. IX*, and states that the editors have everywhere been very careful to take account of the actual state of science. The criticisms that have been made on former monographs have been taken into consideration in the new *Pharmacopœia*, so that there is little to criticize.

Richardson, W. D., reviews the second edition of the "Chemistry of Essential Oils and Artificial Perfumes," by Ernest J. Parry.—*J. Ind. Eng. Chem.*, 1909, v. 1, p. 318.

Umney, John C., describes terpinolene, a new adulterant of essential oils.—*Chem. & Drug.*, 1909, v. 75, p. 292.

Parry, Ernest J., in discussing the adulteration of essential oils, points out that the older forms of adulteration are now less commonly met with, and, as has been pointed out from time to time by Umney, Bennett, and himself, the scientific adulteration of essential oils is a matter to which certain chemists pay a considerable amount of attention. The fixing of standards of ester values, alcohol values, etc., although necessary in certain cases, has had its evil effect in rendering the adulteration of such oils more easy, and it is now necessary not merely to confine oneself to the estimation of the apparent percentage of such compounds present, but further to examine their nature.—*Ibid.*, p. 410.

Wiley, H. W., calls attention to the work done in the essential oils laboratory of the Bureau of Chemistry on the composition of essential oils and methods for their identification.—*Ann. Rep. U. S. Dept. Agric.* for 1909, 1910, p. 432.

Naumann, W., comments on the need for the careful control of essential oils and commends Umney's suggestion for placing considerable reliance on odor tests for oils.—*Chem. & Drug.*, Lond., 1909, v. 75, p. 354.

Pancoast and Pearson discuss preliminary methods for determining the purity of essential oils, and present a table giving the characteristic properties of the official oils. They point out that the odor of an oil is perhaps its most valuable property, the color in many instances will determine its age, and solubility in alcohol is a valuable indication of the authenticity of many oils.—*Am. Druggist*, N. Y., 1909, v. 54, pp. 329–330.

Klassert, Martin, criticizes the paper by R. Reich on the quantitative estimation of volatile oils, and points out the need for taking the moisture content of the air into consideration.—*Ztschr. f. Untera. Nahr. u. Genussm.*, 1909, v. 17, pp. 131–132.

Lehn & Fink (Annual Report for 1909, p. 41) point out that polariscopic readings on essential oils must be taken directly on the oils, undiluted in any manner.

Moerk, Frank X., discusses the value of the centrifuge in the assay of volatile oils.—*Am. J. Pharm.*, Phila., 1909, v. 81, pp. 326–328. See also *Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 939.

An editorial (*Chem. & Drug.*, Lond., 1909, v. 75, pp. 409–410) calls attention to some of the newer adulterants of essential oil, and points out that the buyer must ever be on the lookout for frauds of this nature.

The committee on adulteration asserts that the samples and shipments of volatile oils submitted during the last year were of a rather

good quality. Slight variations in the specific gravities, optical rotation and solubility in alcohol of various percentages, are often met with. This may be due not so much to an adulteration of the respective oils as to the source from which the oils are derived.—Proc. Maryland Pharm. Ass., 1909, p. 73.

Sadtler, Samuel P., asserts that the quality of essential oils, long known to vary very greatly as met with in commerce, has materially improved under the influence of newly introduced assay processes, whereby the percentage of valuable or active principles can be determined with reasonable accuracy.—Proc. VIIth Internat. Congress App. Chem., Sec. VIIIb, Pharmacy, 1909, London, 1910, p. 118.

Fritzsche Bros., New York, think conditions in the essential oil market are to-day considerably better than some years ago. This they attribute not so much to the influence of the food and drugs act directly upon the manufacturer, as to the fact that the type of buyer who would only look for the cheapest price without consideration of quality is not so prominent as in past years.—Proc. Pennsylvania Pharm. Ass., 1909, p. 120.

Dohme and Engelhardt report that the volatile oils examined during the last year made a better showing than those of the year before, with a few exceptions.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 718.

Kline, C. M., asserts that the discriminating buyer of volatile oils is still obliged occasionally to reject shipments coming presumably direct from the distiller. Oil of domestic origin, such as wormwood, pennyroyal, and wintergreen, may be mentioned in this connection. Nevertheless, he states very positively that the general run of distilled domestic oils is better in quality than ever before.—Proc. N. W. D. A., 1909, p. 121.

The examination of drug samples in 1907 showed that, of 60 samples of essential oils examined, 7 were found adulterated or not up to standard.—Pharm. J., Lond., 1909, v. 28 (82), p. 182.

Wiley, H. W., reports that the determination of alcohol in medicinal preparations containing essential oil is not usually satisfactory. The method of shaking out a saturated salt solution with petroleum ether, and subsequently distilling the aqueous portion, gives results which are closely in accordance with facts.—Ann. Rep. U. S. Dept. Agric. for 1909, 1910, p. 432.

Schimmel & Co. (Semi-Annual Report, April, 1909, pp. 106-141) present notes on recent research work concerning terpenes and terpene derivatives, including a bibliography, analytical data, and notes on a variety of constituents of volatile oils.

Roure-Bertrand Fils (Sc. & Ind. Bull. Grasse, October, 1909, pp. 19-47), in a report on scientific work done in their laboratory, discuss the action of hydrochloric acid on linalool and geraniol.



Balbiano, L., reports observations on the separation of allyl and propenyl combinations in volatile oils.—Ber. d. deutsch. chem. Gesellsch., Berl., 1909, v. 42, pp. 1502–1506.

Henderson and Agnew, in a contribution to the chemistry of the terpenes, discuss the oxidation of pinene with mercuric acetate.—J. Chem. Soc., Lond., 1909, v. 95, pp. 289–294.

Henderson and Cameron, in an additional contribution to the chemistry of the terpenes, discuss the action of chromyl chloride on terpinene and on limonene.—*Ibid.*, pp. 969–974.

Bacon, Raymond F., presents a further contribution on Philippine terpenes and essential oils. He discusses Manilla elemi, lemongrass oil, vetiver oil, Balao resin, and some other products.—Philippine J. Sc., 1909, v. 4, pp. 93–132.

Semmler, F. W., presents some additional contributions to our knowledge of the constituents of volatile oils.—Ber. d. deutsch. chem. Gesellsch., Berl., 1909, v. 42, pp. 522 ff.

Wallach, O., presents further contributions to our knowledge of the terpenes and the volatile oils.—Ann. d. Chem., Leipz., 1909, v. 365–368 & 369.

Kondakow, J., presents a contribution to the history of terpenes in which he reviews and criticizes the work done by Wallach.—J. f. prakt. Chem., Leipz., 1909, v. 80, pp. 455–468. See also pp. 497–505.

Brandel, I. W., continues his review of the literature relating to volatile oils that appeared in the years 1901–1903.—Midl. Drug., 1909, v. 43, p. 110 ff.

Rochussen, F., reviews the literature of 1908 relating to volatile oils.—Ztschr. f. ang. Chem., 1909, v. 22, pp. 1670–1681. See also Chem. Ztg., Cöthen, 1909, v. 33, p. 676 ff.

Roure-Bertrand Fils (Sc. & Ind. Bull. Grasse, April, 1909, pp. 82–160) present a comprehensive review of the recent literature on perfumes and essential oils. See also *Ibid.*, October, 1909, pp. 85–145.

Schimmel & Co. (Semi-Annual Report, October, 1909, pp. 147–212) present a comprehensive review of recent literature relating to the chemistry and uses of volatile oils.

Heinrich Haensel (Bericht, April–September, 1909, pp. 49–52) discusses the use of terpene-free volatile oils in the manufacture of cologne and similar preparations.

#### OLEUM ÆTHEREUM.

Vanderkleed, C. E., quotes Fritzsche Bros. to the effect that this unofficial oil of wine is bought by retail druggists for the production of Hoffman's anodyne. Great care should be taken in buying this drug, as it is very difficult to secure an absolutely pure oil. The most common adulterant is chloroform.—Proc. Pennsylvania Pharm. Ass., 1909, p. 128.

## OLEUM AMYGDALÆ AMARÆ.

Woods, Charles D., defines oil of bitter almonds, commercial, as the volatile oil obtained from the seed of bitter almond (*Amygdalus communis* L.), the apricot (*Prunus armeniaca* L.), or the peach (*Amygdalus persica* L.).—Rep. Maine Agric. Exper. Sta. (1909), 1910, App. p. 119.

Schamelhout, A., states that the French oil of bitter almond is the natural essence containing hydrocyanic acid; the officinal Belgian product is benzoic aldehyde, containing no hydrocyanic acid, obtained from the natural oils or prepared synthetically.—Bull. Soc. d. pharm., Brux., 1909, v. 53, p. 11.

LaWall, Charles H., says that especial care should be taken to differentiate between the legal uses to which the several products practically identical with oil of bitter almonds may be put. Under the rules of the U. S. Department of Agriculture, Circular 19, the official oil of bitter almonds can not be used for a flavoring extract.—Proc. New Jersey Pharm. Ass., 1909, p. 102.

Brandel, I. W., calls attention to the following volumetric assay of hydrocyanic acid in bitter almond oil proposed by Dietze: 25 gm. of oil are mixed with 10 gm. of magnesium of hydroxide and 10 cc. of water, and a few drops of neutral potassium dichromate indicator. The mixture is titrated with standard silver nitrate solution.—Midl. Drug., 1909, v. 43, p. 110.

Schimmel & Co. (Semi-Annual Report, April, 1909, p. 17) assert that the prices of essential oil of bitter almonds have remained unchanged.

## OLEUM AMYGDALÆ EXPRESSUM.

Sage, C. Edward, in a discussion of the vegetable oils of the Pharmacopœia, describes almond oil, discusses its origin, comments on the pharmacopœial tests, and presents a table showing the analytical factors of almond oil, peach kernel oil, apricot kernel oil, and poppy oil.—Pharm. J., Lond., 1909, v. 29 (83), pp. 762-763.

Hill, Charles Alex., in commenting on the paper by Sage, calls attention to the nomenclature of oil of almond and the various oils that are frequently substituted for it; he thinks that pharmacists should eliminate from official nomenclature all names that would in any way tend to foster fraud.—*Ibid.*, p. 818.

Schamelhout, A., notes that in France only the oil furnished by the seeds of the almond (bitter and sweet varieties) is officinal. In Belgium one may employ under the same title the oil coming from the seeds of other amygdalas.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 55.

Léger, E., discusses the chemical characters and the adulteration of almond oil.—J. d. pharm. et d. chim., Par., 1909, v. 30, pp. 72-73.

Walburn, L. E., presents some observations on the keeping qualities of almond oil under varying conditions.—Pharm. Zentralh., 1909, v. 50, pp. 845–848. See also Arch. f. Pharm. og Chem., 1909, v. 16, pp. 117–123.

Vanderkleed, C. E., quotes Fritzsche Bros. to the effect that oil of almonds has to be expressed from almonds and not from peach kernels, the latter variety not answering the official requirements.—Proc. Pennsylvania Pharm. Ass., 1909, p. 129.

Hill, Edward C., reports one sample of sweet almond oil which contained cotton seed oil.—Bull. Colorado Bd. Health, 1909, v. 9, No. 1, p. 2.

Lythgoe, Hermann C., reports that 8 samples of expressed oil of almond were examined, of which 2 were declared adulterated. One of these samples was mixed with apricot kernel oil; the other was adulterated with olive oil.—Rep. Massachusetts Bd. Health, (1909), 1910, p. 475.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 6) report 24 samples examined, all genuine, the figures obtained falling between the following limits: Sp. gr., 0.9175 to 0.919; refractive index,  $+7^{\circ}$  to  $+8.5^{\circ}$ ; iodine value, 98 to 100 per cent.

Southall Bros. & Barclay (Rep., 1908–9, Birmingham, 1910, p. 16) report testing many samples of peach or apricot kernel oil during the past two years, and most of them have given normal results with the color and other tests. One abnormal sample gave a distinctly brown coloration with the fuming nitric acid test and proved to absorb 120 per cent of iodine.

Schimmel & Co. (Semi-Annual Report, October, 1909, pp. 16–18) discuss the economic conditions of the almond oil market. See also *Ibid.*, April, 1909, p. 16.

#### OLEUM ANISI

Woods, Charles D., defines oil of anise as the volatile oil obtained from the anise seed.—Rep. Maine Agric. Exper. Sta. (1909), 1910, App. p. 119.

He defines oil of star anise as the volatile oil distilled from the fruit of the star anise (*Illicium verum* Hook.).—*Ibid.*, p. 121.

Dupont, Justin, reports the following definition for oil of anise as having been adopted by the Second International Congress for the Suppression of Adulterations: Oil of anise is obtained by distillation with steam of the fruits of the *Pimpinella anisum* L. (Umbelliferae). Characters: Colorless, very highly refractive liquid; density at  $20^{\circ}$  C., 0.980 to 0.990; polarimetric rotation, feebly lævorotatory, should not be dextrorotatory; solidifying point,  $+15^{\circ}$  to  $+19^{\circ}$  C.; anethol content, 80 to 90 per cent. Oil of anise and oil of badiana should not be allowed to be delivered indiscriminately one for the other. The marked difference between the organoleptic properties readily en-

ables them to be distinguished.—Sc. & Ind. Bull. Roure-Bertrand Fils, Grasse, October, 1909, pp. 7-8.

He also reports (*Ibid.*, p. 8) the definition for oil of star anise and for anethol.

The White Cross Congress, held in Paris in October, 1909, points out that badiane oil (oil of star anise) should not be substituted for oil of anise. It also recommends that the solidification temperature of anethol be accurately fixed.—Chem. & Drug., Lond., 1909, v. 75, p. 681. See also Schamelhout, A., Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 332.

Umney, J. C., points out that the committee appears to be much perplexed as to whether it is wise to substitute the oil of star anise for oil of anise fruit. Certainly it is for pharmaceutical purposes; both are recognized alike in the majority of the pharmacopeias, but, for the making of liqueurs, the oil of the anise fruit is undoubtedly desirable, being readily detected by experts by odor and taste.—Chem. & Drug., 1909, v. 75, p. 580.

Schamelhout, A., states that in the Ph. Fr. V, the natural oil of anise is officinal; in Belgium this is replaced by anethol.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 11.

Lehn & Fink (Annual Report for 1909, p. 42) give the specific gravity, optical rotation, solubility, and congealing point of two samples of oil of anise, distillates from star anise. They assert that the official requirement respecting optical activity should be somewhat broadened. It should be: The oil is generally lævogyrate, the angle of rotation not exceeding  $-2^{\circ}$ ; occasionally, very slightly dextrogyrate. Since star-anise oil comes in lead containers, the oil usually gives a test for lead; the presence of the latter is extremely objectionable.

Saalbach, Louis, points out that oil of anise, as distilled from the various commercial sources, contains from 80 to 90 per cent of anethol; the balance is composed of a number of different substances, which, when isolated, may not have much or any flavoring property; but, when combined with anethol, will doubtless have some effect upon the essence which has been made therefrom. Anethol, in a pure state, is prone to oxidation on exposure, much more so than the true oil.—Proc. Pennsylvania Pharm. Ass., 1909, p. 185.

LaWall, Charles H., thinks the congealing-point test and the tests for alcohol and solubility in 90 per cent alcohol are the most important under oil of anise.—Proc. New Jersey Pharm. Ass., 1909, p. 102.

Schimmel & Co. (Semi-Annual Report, April, 1909, p. 20) point out that the consumption of Russian anise oil has decreased very considerably, since anethol has not only established itself in the manufacture of liqueurs, but has also been introduced in almost all modern pharmacoposias

They also state (*Ibid.*, p. 100), in discussing the Ph. Svec. IX requirements for anethol, that it is to be dispensed in lieu of anise oil and of fennel oil. Anethol from star-anise oil or fennel oil is completely identical with that from anise oil. Good anethol is always colorless, and the congealing point lies between 21° and 22°; when the oil is imperfectly kept it falls considerably. In order to dissolve 1 volume anethol, 2 or 3 volumes 90 per cent alcohol are required.—See also *Ibid.*, p. 142.

v. Soden, Hugo, thinks that the requirement that anethol should be obtained only from oil of anise is not justified, as other oils yield an article identical in all respects to that obtained from oil of anise. He also suggests that the melting point be raised to from 22° to 23° C. and that the freezing point be correspondingly raised to from 21° to 22° C.; the determination of optical activity he thinks is important.—Pharm. Ztg., Berl., 1909, v. 54, p. 249.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 19) report examining 7 samples of oil of anise. Optical rotation was lævo-rotatory in each case and ranged from  $-0.13^\circ$  to  $-1.39^\circ$ . In other respects all the samples conformed with the requirements of the Pharmacopœia and were easily soluble in 3 volumes of 90 per cent alcohol.

The A. Ph. A. committee on drug market report various samples of oil of anise with an objectionable dextrogyration, one sample being  $0^\circ 19'$ . Submitted to sellers it was pronounced adulterated with impure anethol, which admixture must have been made by the Chinese distiller or one of the intermediate agents. Some sellers state that oil of anise as obtained from primary sources is not U. S. P., and they sell in original packages without such guaranty.—Drug Topics, New York, 1909, v. 24, p. 358.

Patch, E. L., reports on 5 samples of oil of anise: Optical rotation  $+0.5^\circ$ ,  $+0.4^\circ$ ,  $+0.4^\circ$ ,  $-0.6^\circ$ ,  $+0.3^\circ$ .—Proc. Am. Pharm. Ass., 1909, v. 57, p. 734.

Lythgoe, Hermann C., reports that of 49 samples of spirit of anise examined 23 were deficient in anise oil, and outlines a method for the determination of anise oil.—Rep. Massachusetts Bd. Health (1909), 1910, p. 476.

Sargeant, F. Pilkington, points out that anise oil is used as a lure for ants, rats, moles, etc. It should be used very sparingly.—Pharm. J., Lond., 1909, v. 29 (83), p. 235.

#### OLEUM AURANTII CORTICIS.

Dupont, Justin, reports a definition of oil of sweet orange (Portugal).—Sc. & Ind. Bull. Roure-Bertrand Fils, Grasse, October, 1909, p. 13.

Schamelhout, A., commenting on the discussion of oil of bitter orange (Semi-Ann. Rep. Schimmel & Co., April, 1909, p. 51), states that the oil of the Ph. Belg. III should have a sweet savor and a density between 0.848 to 0.852. These statements refer to the oil of sweet orange, while the botanical origin refers to the oil of bitter orange.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 204.

LaWall, Charles H., thinks the test for pinene, nitrosochloride, and nitrosopinene is rather too complicated for any but a skilled analyst, working with complete laboratory facilities, such as a pressure filter, etc., and the pharmacist must rely mainly upon the physical characters of this oil for its selection.—Proc. New Jersey Pharm. Ass., 1909, p. 103.

Chace, E. M., in a report as associate referee on flavoring extracts, outlines methods for the examination of oil of orange.—Proc. Ass. Off. Agric. Chem., 1909, 26th Ann. Conv., pp. 108-109 (Bull. Bur. Chem., U. S. Dept. Agric., 1910, No. 132).

Roure-Bertrand Fils (Sc. & Ind. Bull. Grasse, April, 1909, p. 117) quote the figures indicated by Berte and Romeo for the various oils of orange, including the oil of sweet orange, the oil of bitter orange, and the oil of mandarine.

Brandel, I. W., reviews some of the literature relating to oil of sweet orange that has appeared during the years 1901-1903.—Midl. Drug., 1909, v. 43, p. 248.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 42) report on two consignments of West Indian orange oils, which they compare with Messina oils examined. The optical rotation of both the oil of bitter and sweet orange of West Indian origin was distinctly higher than that of the oil from Messina.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 23) examined 4 specimens of oil of sweet orange, 3 of which proved satisfactory, the fourth being condemned as not genuine and having a specific gravity of 0.854, rotation  $+74.90^\circ$ . The normal oils had specific gravities of 0.8470 to 0.8503; rotation,  $+95.00^\circ$  to  $+97.40^\circ$ .

#### OLEUM BERGAMOTTÆ.

Dupont, Justin, reports the following definition of oil of bergamot as having been adopted by the Second International Congress for the Suppression of Adulterations: Oil of bergamot is prepared by the cold process by pressing the fresh rind of the *Citrus bergamia* Risso. Characters: Liquid of a more or less intense greenish yellow color; density at  $15^\circ$  C., 0.879 to 0.887; polarimetric rotation,  $+8^\circ$  to  $+25^\circ$  C. (calculated for a tube of 100 mm. in length); ester content (calculated as linalyl acetate), 30 to 45 per cent; residue from evaporation on the boiling-water bath, 3 to 6 per cent.—Sc. & Ind. Bull. Roure-Bertrand Fils, Grasse, October, 1909, p. 8.

Roure-Bertrand Fils (*Ibid.*, p. 8) assert that genuine oils have been met with which contain less than 30 per cent of esters. See also Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 333, and Chem. & Drug., Lond., 1909, v. 75, p. 681.

Umney, J. C., in connection with the proposed international requirement for oil of bergamot, points out that the specific gravity is stated as being from 0.879 to 0.887. The former figure is far too low. The optical rotation is stated to be from  $+4^{\circ}$  to  $+25^{\circ}$ . He has not met with an oil over  $+20^{\circ}$  the purity of which was undoubted. The ester percentage is stated to vary from 30 to 45, which is certainly a very wide commercial range.—Chem. & Drug., 1909, v. 75, p. 580.

Lehn & Fink (Annual Report for 1909, p. 43) point out that the two important criteria of oil of bergamot are the percentages of linalyl acetate and of bergaptene.

Schamelhout, A., commenting on the discussion of bergamot oil (Semi-Ann. Rep. Schimmel & Co., April, 1909, p. 50) states that the density according to the Ph. Belg. III lies between 0.88 and 0.89. It should contain from 30 to 45 per cent of linalyl acetate, and leave on evaporation on the water bath a residue of from 5 to 6 per cent.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 203.

Umney, John C., asserts that genuine oil of bergamot is really scarce and the scarcity is leading to much sophistication. He asserts that among the substances offered as adulterants of oil of bergamot are: Linalyl acetate, ethyl citrate, ethyl benzoate, and benzyl benzoate.—Chem. & Drug., Lond., 1909, v. 75, p. 411.

Simmons, Wm. H., asserts that he has frequently found oil of bergamot with rotations of  $+20^{\circ}$ —sometimes slightly over—which from their other analytical data, together with their source and odor, were undoubtedly pure.—*Ibid.*, p. 487.

Umney, John C., commenting on the remarks made by Simmons, says that his desire in advocating a maximum of  $+19^{\circ}$  for oil of bergamot was to preclude any possibility of addition of orange terpene, added with a view to neutralizing certain of the physical factors of synthetic esters.—*Ibid.*, p. 522.

Mascarenhas, J. C., reports on nine samples of oil of bergamot collected by himself, the optical rotation of which was found to range between  $+18.50^{\circ}$  to  $+19.80^{\circ}$ . He is, therefore, inclined to indorse Umney's statement recommending a maximum of  $+19^{\circ}$ .—*Ibid.*, p. 557.

Kline, C. M., reports on a sample of oil of bergamot: Specific gravity, 0.872 at  $15^{\circ}$ ; optical rotation,  $+51^{\circ} 30'$ . The oil would also be directly suspicious on account of the strong fluorescence which is not found in normal oils.—Proc. N. W. D. A., 1909, p. 124.

Gane, E. H., reports two lots of oil of bergamot containing alcohol in small amounts, probably as a preservative.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 734.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 14), report 11 samples of this oil examined, 2 adulterated with lemon oil and 1 with turpentine. These were not direct imports. Specific gravity, 0.867 to 0.8755; optical rotation,  $+11^{\circ} 20'$ ; ester as linalyl acetate, 16.6 to 22.1 per cent.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 19) report that with two exceptions the oils of bergamot examined have given quite satisfactory results, the figures obtained being specific gravity, 0.881 to 0.886; linalyl acetate, 37.30 to 44.69 per cent. As they have before found to be the case, but few of the samples form a clear solution with 2 parts of 80 per cent alcohol. Two other oils were objected to on account of low ester percentage, the results being: Specific gravity, 0.874 and 0.879; linalyl acetate, 17.2 and 30.1 per cent.

#### OLEUM BETULÆ.

Henkel, Alice, describes and figures *Betula lenta* L., enumerates its common names, discusses its habitat and range, gives a description of the tree and of the bark, and discusses the collection, prices, and uses.—Bull. Bur. Plant Ind., U. S. Dept. Agric., 1909, No. 139, pp. 16-18.

Dupont, Justin, reports the following definition of natural oil of wintergreen as having been adopted by the Second International Congress for the Suppression of Adulterations: Natural oil of wintergreen is obtained by the distillation, after maceration with water, of *Gaultheria procumbens* L. (Ericaceæ) or of *Betula lenta*. Characters: Density at  $15^{\circ}$  C., 1.179 to 1.190; polarimetric rotation, feebly lævorotatory (Gaultheria), or inactive (Betula).—Sc. & Ind. Bull. Roure-Bertrand Fils, Grasse, October, 1909, p. 17.

Beringer, George M., thinks that as true oil of gaultheria is exceedingly scarce and rarely seen in the stores, the Pharmacopœia should direct the use of oil of betula in all official preparations where oil of gaultheria is now given.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 812.

LaWall, Charles H., thinks it probable that we shall soon have more certain tests for the differentiation of oil of sweet birch, oil of wintergreen, and methyl salicylate. The use of the polariscope is not by any means conclusive, nor is it possible always for the retail pharmacist to apply it.—Proc. New Jersey Pharm. Ass., 1909, p. 103.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 15) report that a sample of crude oil giving the potassium cyanide reaction, had a specific gravity of 0.924. The figures obtained from rectified oils ranged from 0.888 to 0.894.



Schimmel & Co. (Semi-Annual Report, April, 1909, p. 90) point out that the production of oil of sweet birch has again increased, both in Pennsylvania and in the more Southern States. The present low price should be an inducement to lay in a sufficient supply, as it is known that during the summer the producers are otherwise occupied, while the increasing consumption tends to put up the prices.

#### OLEUM CADINUM.

Schimmel & Co. (Semi-Annual Report, April, 1909, pp. 58-59) assert that the adulteration of cade oil has assumed incredible dimensions and that a really pure article is nowadays almost the exception.

Umney, J. C., asserts that oleum cadinum varies enormously, and it is difficult, if not impossible, to obtain an oil having a specific gravity of about 0.990, the figure official in the British Pharmacopœia. In connection with the proposed international standards, no tests are given for other tar oils, and tests which have been proposed from time to time are unsatisfactory.—Chem. & Drug., Lond., 1909, v. 75, p. 580.

Dohme and Engelhardt believe that the official requirements for oil of cade should be made more stringent.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 718.

Schimmel & Co. (Semi-Annual Report, April, 1909, pp. 58-59) discuss Pepin's paper on the origin, preparation, and examination of the oil of cade, report on a sample of true oil examined by them, and state that further researches are required to establish really authoritative constants for this empyreumatic oil.

Vanderkleed, C. E., quotes Fritzsche Bros. to the effect that crude empyreumatic oils, which used to be sold in place of oil of cade, do not answer. The oil must be the distillate of the wood of *Juniperus oxycedrus*.—Proc. Pennsylvania Pharm. Ass., 1909, p. 127.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 8) report that three samples of oil of cade, when examined according to the methods of the British Pharmaceutical Codex, gave normal results except as to specific gravities, these being 1.022, 1.024, and 1.023, respectively. A further sample had a specific gravity of 1.055, and gave pronounced reactions for furfural and catechol, pointing to the presence of ordinary wood-tar or coal-tar oils.

#### OLEUM CAJUPUTI.

LaWall, Charles H., states that the cineol assay is a process requiring facilities and skillful manipulation; the pharmacist must trust to the physical characters for guidance.—Proc. New Jersey Pharm. Ass., 1909, p. 103.

Vanderkleed, C. E., quotes Fritzsche Bros. to the effect that only rectified oils answer the requirements of the U. S. P. The native oils must be rejected as not soluble enough.—Proc. Pennsylvania Pharm. Ass., 1909, p. 127.

Gane, E. H., reports on three samples of oil of cajuput with specific gravity, 0.913 to 0.917; rotation,  $-3^{\circ} 25'$  to  $+0^{\circ} 5'$ ; cineol, 35 to 70 per cent. All contained copper.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 734.

Patch, E. L., reports one sample having a specific gravity of 0.917; rotation,  $-2^{\circ}$ ; no copper; cineol, 55 per cent.—*Ibid.*, p. 734.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 16) report on five consignments of cajuput oil. Specific gravity, 0.9185 to 0.922; optical rotation,  $-1^{\circ} 20'$  to  $-2^{\circ} 20'$ ; cineol, 45 to 57 per cent. All were soluble in from 1 to 2 volumes of 80 per cent alcohol.

Brandel, I. W., reviews some of the recent literature relating to oil of cajuput.—Midl. Drug., 1909, v. 43, p. 385.

Schimmel & Co. (Semi-Annual Report, October, 1909, pp. 28–29) report that cajuput oil is no longer as much in demand as formerly. The amounts exported from Macassar during the years 1905–1909 are reported.

#### OLEUM CARL.

Dupont, Justin, reports the following definition of oil of caraway as having been adopted by the Second International Congress for the Suppression of Adulterations: Oil of caraway is obtained by the distillation of the fruits of *Carum carvi* L. (Umbelliferae). Characters: Colorless liquid, becoming yellow on keeping; density at  $15^{\circ}$  C., 0.903 to 0.918; polarimetric rotation,  $+70^{\circ}$  to  $+85^{\circ}$  (100 mm.); carvone content, 45 to 60 per cent.—Sc. & Ind. Bull. Roure-Bertrand Fils, Grasse, October, 1909, p. 9.

Umney, J. C., in commenting on the proposed international standards, points out that the specific gravity of caraway oil is stated as being from 0.900 to 0.918. Probably that figure is a misunderstanding, arising out of the fact that the United States Pharmacopœia stated its minimum specific gravity as 0.900 taken at  $25^{\circ}$  C. No normal caraway oil has a specific gravity of less than 0.910, the minimum figure of the Ph. Brit.—Chem. & Drug., Lond., 1909, v. 75, p. 580.

Schimmel & Co. (Semi-Annual Report, April, 1909, p. 101), in discussing the Ph. Svec. IX requirements for carvone, assert that the rotation of this article lies between  $+57^{\circ}$  and  $+60^{\circ}$ . They also point out that carvone is directed to be dispensed in lieu of caraway oil.

v. Soden, Hugo, discusses the substitution of carvone for oil of caraway, enumerates the contaminating substances frequently present, and points out that carvone has practically double the strength of the

oil which it is designed to replace.—Pharm. Ztg., Berl., 1909, v. 54, p. 250.

Henderson, H. John, reports on a sample of adulterated oil of caraway which was found on examination to contain 16 per cent of a non-volatile oil, subsequently identified as castor oil.—Pharm. J., Lond., 1909, v. 28 (82), p. 610.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 18) report on five lots of caraway oil examined: Specific gravity, 0.9095 to 0.913; optical rotation,  $+77^{\circ} 30'$  to  $+80^{\circ} 0'$ .

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 20) report that the results obtained from the examination of four samples of English oil of caraway in specific gravity, rotation, distillate below  $185^{\circ}$ , and distillate above  $200^{\circ}$ , show remarkably little variation. Similarly the numerous foreign distilled oils show but little variation between themselves, although richer in carvol than the English oils.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 273-274) quotes Gmeiner, who suggests the use of oil of caraway in the treatment of scabies in man and animals.

#### OLEUM CARYOPHYLLI.

Woods, Charles D., defines oil of cloves as the lead-free, volatile oil obtained from cloves.—Rep. Maine Agric. Exper. Sta. (1909), 1910, App., p. 120.

Dupont, Justin, reports the following definition of oil of cloves as having been adopted by the Second International Congress for the Suppression of Adulterations: Oil of cloves is obtained by the steam distillation of cloves, the unopened flower buds of *Caryophyllus aromaticus* L. (Myrtaceæ). Characters: Oil, nearly colorless or yellowish in color when freshly distilled, becoming brown on keeping; density at  $15^{\circ}$  C., 1.040 to 1.068; eugenol content, 70 to 92 per cent.—Sc. & Ind. Bull. Roure-Bertrand Fils, Grasse, October, 1909, pp. 9-10.

Umney, J. C., in connection with the proposed international standard for oil of cloves points out that the lower specific gravity (1.045) is a wise one. Many oils fall below the limit of the Ph. Brit. 1.050, but there is no necessity to fix so low a eugenol figure as 70. It is stated to be from 70 to 90, and it certainly should not be less than 80.—Chem. & Drug., Lond., 1909, v. 75, p. 580.

Schamelhout, A., states that in France the natural oil of cloves is officinal; in Belgium this is replaced by eugenol, a product not included in the Ph. Fr. V.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 12.

Masson, H., presents some notes on the alcoholic constituents of clove oil.—Comptes rend. Acad. d. sc., Par., 1909, v. 149, pp. 630-632.

Reich, R., in a general discussion on the determination of volatile oil in cloves, reports that the eugenol content of a number of samples

of oil of cloves, from different sources, varied from 79 to 87.9 per cent.—*Ztschr. f. Unters. Nahr. u. Genussm.*, 1909, v. 18, pp. 401-412.

Moerk, Frank X., suggests the use of the centrifuge in the assay of oil of cloves, and outlines a method for determining the phenolic components by a modification of the pharmacopœial method.—*Am. J. Pharm.*, Phila., 1909, v. 81, p. 327.

Patch, E. L., reports nine lots of oil of cloves; specific gravity, 1.041 to 1.0454; eugenol, 81.5 to 87 per cent.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 734.

Kline, C. M., reports on two samples of oil of cloves, and states that, with normal oils, the percentages of eugenol are always found to be between 84 and 87.—*Proc. N. W. D. A.*, 1909, p. 124.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 22) report their distillates as possessing a specific gravity of 1.049, optical rotation up to  $-1^{\circ}$ , and containing between 87 and 88 per cent eugenol. An American sample gave similar figures, although only 85 per cent of eugenol was shown. A small quantity from the Seychelles had a specific gravity of 1.0487, optical rotation  $-1^{\circ} 34'$ , eugenol 86 per cent, and had an odor that was not good.

Brandel, I. W., reviews the literature relating to oil of cloves during the years 1901-1903, and outlines the assay for eugenol content given by Verley and Boelsings.—*Midl. Drug.*, 1909, v. 43, p. 327.

Landis and Hartz present observations on the use of oil of cloves in pulmonary tuberculosis.—*Therap. Gaz.*, 1909, v. 33, pp. 386-387.

Sargeant, F. Pilkington, points out that clove oil is used as an insectifuge, and also as a remedy for feather-eating scabies in poultry.—*Pharm. J.*, Lond., 1909, v. 29 (83), p. 236.

#### OLEUM CHENOPODII.

LaWall, Charles H., states that the oil of chenopodium must be judged entirely by its physical characters, as the constants and tests have been entirely omitted in the corrected editions of the U. S. P.—*Proc. New Jersey Pharm. Ass.*, 1909, p. 103.

Beringer, George M., points out that as this is an American product, no difficulty should exist that would prevent the preparation of authentic samples and the establishing of correct descriptions and tests.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 812.

Gane and Webster report on 11 samples of American wormseed oil which varied in specific gravity from 0.953 to 0.967; in optical rotation from  $-3^{\circ} 20'$  to  $-9^{\circ} 8'$ ; and in solubility in 70 per cent alcohol from 1 in 3 parts to 1 in 10 parts.—*Drug Topics*, New York, 1909, v. 24, p. 148.

Southall Bros. & Barclay (*Rep.*, 1908-9, Birmingham, 1910, p. 27) report that two samples of American wormseed oil gave satisfac-

tory results: Specific gravity, 0.966 and 0.9645; rotation,  $-6.25^{\circ}$  and  $-6.60^{\circ}$ .

Webb, Frank, reports a case of lumbricoids in which chenopodium was used hypodermically with the result that the patient got rid of her undesirable tenants and they have not returned.—*Eclectic Rev.*, 1909, v. 12, p. 200.

#### OLEUM CINNAMOMI.

Woods, Charles D., defines oil of cassia as the lead-free volatile oil obtained from the leaves or bark of *Cinnamomum cassia* Bl., and containing not less than 75 per cent by weight of cinnamic aldehyde.—*Rep. Maine Agric. Exper. Sta.* (1909), 1910, App. p. 120.

Dupont, Justin, reports the following definition of oil of Chinese cinnamon, as having been adopted by the Second International Congress for the Suppression of Adulterations: Essential oil of Chinese cinnamon is obtained by the distillation of the leaves of *Cinnamomum cassia* Blume (Lauraceæ). Characters: Liquid of a more or less deep yellow color; highly refractive; density at  $15^{\circ}$  C., 1.053 to 1.070; optically nearly inactive; cinnamic aldehyde content, 70 to 90 per cent.—*Sc. & Ind. Bull. Roure-Bertrand Fils, Grasse*, October, 1909, p. 9. See also *Chem. & Drug.*, Lond., 1909, v. 75, p. 681, and *Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 333.

Umney, J. C., points out that the proposed international standard for cinnamic aldehyde percentage of oil of cassia is stated to vary from 50 to 90. Normal oils contain 75 to 80 per cent. Lower percentages are practically always obtained by sophistication. He has never examined an unadulterated oil containing less than 72 per cent of cinnamic aldehyde.—*Chem. & Drug.*, Lond., 1909, v. 75, p. 580.

v. Soden, Hugo, thinks that oil of cinnamon is more properly termed *Oleum Cinnamomi cassiæ*. He also points out that the crude oil must be rectified to free it from acetic acid, resin, and lead. The cinnamic aldehyde content might be increased to 85 per cent.—*Pharm. Ztg., Berl.*, 1909, v. 54, p. 250.

LaWall, Charles H., states that the sodium bisulphite used for determining the cinnaldehyde should be perfectly fresh, if accurate and satisfactory results are to be obtained; the difficulties encountered in this estimation frequently being due to lack of care in this respect.—*Proc. New Jersey Pharm. Ass.*, 1909, p. 103.

Wiley, H. W., asserts that many of the oil of cassia importations as well as the domestic samples are contaminated with undesirable metallic substances, though it is usually claimed in such cases that the oil is for "technical use only."—*Ann. Rep. U. S. Dept. Agric.* for 1909, 1910, p. 432.

Moerk, Frank X., outlines a modification of the U. S. P. method for determining the aldehyde content of oil of cassia using a satu-

rated solution of sodium sulphite and separating by means of the centrifuge.—*Am. J. Pharm. Phila.*, 1909, v. 81, pp. 327–328.

Dohme and Engelhardt report oil of cinnamon containing copper and lead and insoluble in 70 per cent alcohol; another lot which contained copper also was contaminated with rosin and exhibited a dark, almost black color, and a bad odor.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 718.

Vanderkleed, C. E., quotes Fritzsche Bros. to the effect that most native oils contain traces of lead. Only rectified oils answer the official requirements.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 127.

Kline, C. M., points out that while oil of cassia was formerly imported without restriction in this country, at the present time all packages containing native oil of cassia must be marked "For technical purposes." Oil of cassia is now offered under the following designations: "Oil cassia pure" (for technical purposes), "Oil of cassia lead free" (for food products), "Oil cassia rectified" (for medicinal purposes).—*Proc. N. W. D. A.*, 1909, p. 121.

Patch, E. L., reports oil of cassia specific gravity 1.0534 to 1.0606; rotation of one,  $-0.4^{\circ}$ ; lead absent; cinnamic aldehyde 70 to 80 per cent.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 734.

Scoville, W. L., reports several lots running so close to official limits in cinnamic aldehyde, as to cause suspicion that it is systematically treated.—*Ibid.*, p. 734.

Gane, E. H., reports 10 lots with specific gravity 1.048 to 1.066; aldehyde 70 to 82 per cent (8 above 75 per cent); lead present in all; resin in 2; petroleum in 2; 8 soluble in 70 per cent alcohol, 2 not.—*Ibid.*, p. 734.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 19) report on 5 samples of oil of cassia: Specific gravity 1.063 to 1.066; cinnamic aldehyde 80 to 85 per cent. All were soluble in 3 volumes or less of 70 per cent alcohol.

#### OLEUM CINNAMOMI ZEYLANICUM.

Woods, Charles D., defines oil of Ceylon cinnamon as the lead-free volatile oil obtained from the bark of the Ceylon cinnamon (*Cinnamomum zeylanicum* Breyne), which contains not less than 65 per cent by weight of cinnamic aldehyde and not more than 10 per cent by weight of eugenol.—*Rep. Maine Agric. Exper. Sta.* (1909), 1910, App. 120.

Pilgrim, A. A. L., reports a study of the oil obtained from the bark of the root of *C. zeylanicum* Breyne.—*Pharm. Weekblad.*, 1909, v. 46, pp. 50–54.

Schamelhout, A., states that in France the oil of Ceylon cinnamon only is officinal, while in Belgium one may employ also that of China

or pure cinnamic aldehyde.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 12. See also p. 200.

The committee on drug market reports oil of cinnamon, Ceylon, quoted at \$6 to \$22 per pound. One dealer claims all sold below \$14 are imitation products. Other manufacturers of high repute guarantee their products at \$7.50 to be a pure distillate from Ceylon cinnamon bark.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 734.

Schimmel & Co. (Semi-Annual Report, April, 1909, p. 33) state that the specific gravity of "normal" oils varies from 1.023 to 1.040, and that lower densities may be due to the use of defective material or to unsuitable methods of distillation.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 21) report the following figures for cinnamon oil: Specific gravity, 1.022 to 1.034; optical rotation,  $-3^{\circ} 30'$  to  $-0^{\circ} 44'$ ; aldehyde, 73 to 78 per cent; phenols 10 to 16 per cent. One sample from the Seychelles gave abnormal figures: Specific gravity, 0.962; optical rotation,  $-5^{\circ} 42'$ ; aldehyde, 40 per cent; phenols, 10 per cent.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 20) report that they continue to find oil of cinnamon to contain cinnamic aldehyde in excess of the amount characteristic of a genuine distillate, and there seems to be little doubt that adulteration with synthetically produced aldehyde is often practiced.

#### OLEUM COPAIBÆ.

Umney, J. C., asserts that in the programme for the White Cross Society Congress, the optical rotation of oil of copaiba is stated to be  $+7^{\circ}$  to  $+35^{\circ}$ . It should be  $-7^{\circ}$  to  $-35^{\circ}$ . In his opinion the lower limit might be reduced to  $-5^{\circ}$ .—Chem. & Drug., Lond., 1909, v. 75, p. 580.

Vanderkleed, C. E., quotes Fritzsche Bros. to the effect that most of the oil copaiba sold for technical purposes is in reality the oil of Gurjun balsam, not answering the requirements. The retailer does well to buy the "Para" brand, as many of the Maracaibo oils are deficient in solubility.—Proc. Pennsylvania Pharm. Ass., 1909, p. 127.

Gane, E. H., reports on 5 samples, 2 containing African oil, 1 Gurjun oil; rotation,  $-9^{\circ}$  to  $+42^{\circ}$ .—Proc. Am. Pharm. Ass., 1909, v. 57, p. 734.

Parry, Ernest J., reports that he has met with a great deal of essential oil of copaiba, which on examination was found to be Gurjun oil, mixed in such proportions as to pass the tests of the British Pharmacopœia.—Chem. & Drug., Lond., 1909, v. 74, p. 270.

Evans Sons Lescher & Webb (Analytical Notes, 1909, pp. 25-26) present figures obtained from volatile oils of different varieties of copaiba examined during the year: Maranhão, specific gravity,

0.898 to 0.905; optical rotation,  $-1^{\circ} 30'$  to  $-21^{\circ} 40'$ . Maracaibo: Specific gravity, 0.900 to 0.903; optical rotation,  $-6^{\circ} 0'$  to  $-8^{\circ} 0'$ . Para: Specific gravity, 0.886 to 0.898; optical rotation,  $-18^{\circ} 30'$  to  $-32^{\circ} 40'$ . Cartagena: Specific gravity, 0.895 to 0.896; optical rotation,  $-30^{\circ} 0'$  to  $-40^{\circ} 0'$ . Bahia: Specific gravity, 0.888 to 0.909; optical rotation,  $-2^{\circ} 42'$  to  $-28^{\circ}$ . Para balsams give oils with usually lower specific gravity and higher rotation than other varieties.

#### OLEUM CORIANDRI.

Capps, Pratt, McCrae, and Halsey recommend the deletion of oleum coriandri from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

Dupont, Justin, reports the following definition of oil of coriander as having been adopted by the Second International Congress for the Suppression of Adulterations: Oil of coriander is obtained by the distillation of the fruits of *Coriandrum sativum* L. (Umbelliferae). Characters: Density at  $15^{\circ}\text{C}$ ., 0.870 to 0.885; polarimetric rotation,  $+5^{\circ}$  to  $+13^{\circ}$ .—Sc. & Ind. Bull. Roure-Bertrand Fils, Grasse, October, 1909, p. 10.

Umney, J. C., points out that the proposed international standard requirement for the specific gravity of oil of coriander is fairly accurate, although he has never met with an oil giving as high a specific gravity as 0.895. The range of the U. S. P., which is to 0.878, or the Ph. Brit. 0.885, is, in his opinion, better.—Chem. & Drug., Lond., 1909, v. 75, p. 580.

Bernegau, L. H., reports on one sample of oil of coriander submitted by a French manufacturer having an optical rotation of  $-15.9^{\circ}$ . The U. S. P. requires the oil to be dextrogyrate  $+7$  to  $+14^{\circ}$ . The oil had an excellent odor and answered all other U. S. P. requirements.—Proc. Pennsylvania Pharm. Ass., 1909, p. 126.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 27) report examining a sample of oil of coriander which had been stored for a number of years, which possessed a slightly higher specific gravity than usual. Three current distillates were also examined. The four samples had a specific gravity of from 0.872 to 0.888; optical rotation,  $+9^{\circ}$  to  $+11^{\circ}$ ; soluble in from 2 to 3 volumes of 70 per cent alcohol.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 21) examined three samples of oil of coriander, the results obtained being normal in each instance: Specific gravity, 0.871 to 0.875; rotation,  $+9.96^{\circ}$  to  $+10.20^{\circ}$ . All were soluble in 1 to 3 volumes of 70 per cent alcohol.

#### OLEUM CUBEBAE.

Heinrich Haensel (Half-Yearly Report, April, 1909, p. 9) reports the following constants for oil of cubeb: Specific gravity at  $15^{\circ}\text{C}$ .,



0.9383; optical rotation at 20° C.,  $-10.25^\circ$ ; and the following for terpeness oil of cubeb, specific gravity at 15° C., 0.9428, and optical rotation at 20° C.,  $-10.05^\circ$ .

Kline, C. M., reports a sample of cubeb oil with a specific gravity of 0.916, at 25°; optical rotation,  $-23^\circ 40'$ . The latter figure is slightly below the U. S. P. limit.—Proc. N. W. D. A., 1909, p. 126.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 28) report on 16 samples of oil of cubeb, the optical rotation,  $-26^\circ$  to  $-31^\circ$ , being slightly lower than in former years. The majority of the samples dissolved in 1 volume 90 per cent alcohol, but a few required as much as 8 volumes.

#### OLEUM ERIGERONTIS.

Capps, Pratt, McCrae, and Halsey recommend the deletion of oleum erigerontis from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

#### OLEUM EUCALYPTI

Dupont, Justin, reports the following definition of oil of eucalyptus as having been adopted by the Second International Congress for the Suppression of Adulterations: Oil of eucalyptus is obtained by the distillation of the leaves of several varieties of *Eucalyptus*. Characters: Density at 15° C., 0.910 to 0.930; dextrorotatory, up to  $+15^\circ$ ; eucalyptol content; 55 to 80 per cent.—Sc. & Ind. Bull. Roure-Bertrand Fils, Grasse, October, 1909, pp. 10-11.

Umney, J. C., in connection with the proposed international standard for oil of eucalyptus asserts that the characters recorded are satisfactory. It should be noted that the oil met with in commerce is described in the report as principally that of *Eucalyptus globulus*. He believes that by far the greater proportion met with in commerce is derived from other species than *globulus*, viz, *E. dumosa*.—Chem. & Drug., Lond., 1909, v. 75, p. 580.

Schamelhout, A., states that the natural oil of eucalyptus is official in France; in Belgium one must deliver eucalyptol in place of the essence. The Ph. Fr. V also gives information about eucalyptol.—Bull. Soc. d. pharm., Brux., 1909, v. 53, p. 12.

Brandel, I. W., reviews some of the literature relating to oil of *Eucalyptus globulus* and some of the other eucalyptus oils.—Midl. Drug., 1909, v. 43, pp. 385-387, 497-499.

Schuedding, F. E., discusses the making of oil of eucalyptus in California.—Pacific Pharmacist, 1909-10, v. 3, pp. 186-187.

Binz, Edward G., reports on the distilling of oil of eucalyptus in southern California.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 1054-1055.

Desnos, T., points out that many samples of oil of eucalyptus are offered as "Globulus Oil." Oil of eucalyptus globulus is the only species mentioned by name in the Ph. Brit. and many sellers argue that any oil of eucalyptus passing the Ph. Brit. tests is entitled to be sold as globulus.—Chem. & Drug., Lond., 1909, v. 74, p. 292.

Harrison, E. F., reports observations on the properties and commercial value of South African eucalyptus oil, which he believes to be of excellent quality and well suited for medicinal use.—Pharm. J., Lond., 1909, v. 28 (82), p. 4.

Schimmel & Co. (Semi-Annual Report, April, 1909, p. 53) report on two eucalyptus oils from Java. Also (*Ibid.*, October, 1909, pp. 66-67) report on a sample of eucalyptus oil received from the Transvaal.

Patch, Edgar L., calls attention to a number of criticisms on the assay for cineol in oil of eucalyptus.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 812-813.

LaWall, Charles H., states that oil of eucalyptus resembles oil of cajuput in the difficulty of applying the method for the determination of cineol; so that the physical properties and test for absence of phellandrene containing oils are all that is left to the pharmacist upon which to base his opinion.—Proc. New Jersey Pharm. Ass., 1909, p. 103.

Vanderkleed, C. E., quotes Fritzsche Bros. to the effect that there is a variety of oil offered in the market distilled from Eucalyptus trees grown in California. This oil does not answer the requirements as it contains an excess of resinous matters and is deficient in eucalyptol. The only oil which is certain to comply with the official requirements is the Australian quality.—Proc. Pennsylvania Pharm. Ass., 1909, p. 128.

The A. Ph. A. committee on drug market asserts that investigation shows that oil of eucalyptus contains dextrogyrate and lævogyrate constituents, the effect of the former usually preponderating. The Committee found no particular difficulty with the U. S. P. process of cineol estimation, and have received concordant results with duplicates.—Drug Topics, New York, 1909, v. 24, pp. 358-359.

Patch, E. L., reports on four samples of oil of eucalyptus having a specific gravity of from 0.917 to 0.926; optical rotation,  $1.9^{\circ}$  to  $+1^{\circ}$ ; cineol, 65 to 70 per cent; and soluble in 3 parts of 70 per cent alcohol.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 734.

Gane, E. H., reports on five lots with specific gravity 0.908 to 0.917; rotation,  $1^{\circ} 3'$  to  $5^{\circ}$ ; cineol, 36 to 75 per cent. One sample assaying 36 per cent cineol had a large amount of phellandrene.—*Ibid.*, p. 735.

\*Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 29) report that four samples of oil of eucalyptus sold as the product of *E.*

*globulus* had a specific gravity of 0.9205 to 0.922; cineol, 56.0 to 63.2 per cent; three were not soluble in 70 per cent alcohol to a clear solution, the other dissolved in 4 volumes. Phellandrene was absent from all.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 21) report that a specimen of citronellal containing oil of *E. citriodora* gave on examination a specific gravity of 0.877; rotation  $+0.02^\circ$ .

Sargeant, F. Pilkington, asserts that eucalyptus oil is used as a remedy for gapes in fowls, and also for the disinfection of bee-hives.—Pharm. J., Lond., 1909, v. 29 (83), p. 236.

#### OLEUM FENICULI

Dupont, Justin, reports the following definition of oil of sweet fennel as having been adopted by the Second International Congress for the Suppression of Adulterations. Oil of sweet fennel is obtained by the distillation of the fruits of *Foeniculum vulgare*, Gaertner (Umbelliferae). Characters: Density at  $15^\circ$ , 0.965 to 0.985; polarimetric rotation,  $+12^\circ$  to  $+24^\circ$ ; solidifying point,  $+4^\circ$  to  $+6^\circ$  C.—Sc. & Ind. Bull. Roure-Bertrand Fils, Grasse, October, 1909, p. 11.

Umney, J. C., in discussing the proposed international standard for oil of fennel, asserts that the lower limit for melting point ( $+2^\circ$ ) is rather low, and should be slightly raised. The Ph. Germ. and U. S. P. require a minimum of  $+5^\circ$ .—Chem. & Drug., Lond., 1909, v. 75, p. 580.

v. Soden, Hugo, thinks that the specific gravity of oil of fennel should be 0.965 to 0.978 and it should be required to have an optical rotation of from  $+12^\circ$  to  $+24^\circ$  and should be soluble in from 6 to 9 parts of 80 per cent alcohol. The Ph. Germ. IV requirements for freezing point and anethol content are too low. The freezing point should not be below  $+5^\circ$  to  $+6^\circ$  C.—Pharm. Ztg., Berl., 1909, v. 54, p. 250.

Schamelhout, A., gives as the characters adopted for essence of sweet fennel by the Second International Congress for the Suppression of Adulteration (Paris, 1909): Density at  $15^\circ$ , 0.965 to 0.985 (Ph. Belg. III 0.965 to 0.975); deviation,  $+12^\circ$  to  $+24^\circ$ ; solidification point,  $+4^\circ$  to  $+6^\circ$  C. (Ph. Belg. III about  $0^\circ$ ).—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 333.

The A. Ph. A. committee on drug market report that much oil of fennel sold does not answer the official requirements. Seller claimed error in shipment in one case, French oil having been sent instead of German oil. He claims that there are 10 varieties of oil on the market.—Drug Topics, New York, 1909, v. 24, p. 358.

Patch, E. L., reports on seven samples of oil of fennel having a specific gravity of from 0.902 to 0.965, congealing up to  $6.5^\circ$ , soluble in equal parts of 92 per cent alcohol; one sample was insoluble in 10

parts of 80 per cent alcohol, rejected.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 735.

Gane, E. H., examined samples from eight dealers; all soluble in 80 per cent alcohol, some slightly opalescent; specific gravity, 0.958 to 0.9762; congealing point,  $-11^{\circ}$  C. to  $+4^{\circ}$  C.; rotation,  $1^{\circ} 44'$  to  $32^{\circ} 36'$ .—*Ibid.*, p. 735.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 30) report on 2 samples of oil of fennel as showing the need for careful supervision in the purchase of essential oils: Specific gravity, 0.9845 and 0.893; optical rotation,  $+5^{\circ}$  and  $20^{\circ}$ ; one solidifying at  $+11^{\circ}$  C., the other not even turbid at  $-5^{\circ}$  C.; one soluble in 8 volumes 80 per cent alcohol, the other not soluble.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 21) reassert that they no longer have the difficulty formerly experienced in obtaining authentic parcels of oil of fennel. Two samples examined gave specific gravity, 0.967 and 0.971; rotation,  $+16.70^{\circ}$  and  $+13.75^{\circ}$ ; congealing point,  $+4^{\circ}$  C and  $+7^{\circ}$  C.

#### OLEUM GAULTHERIÆ.

Dupont, Justin, reports the following definition of natural oil of wintergreen as having been adopted by the Second International Congress for the Suppression of Adulterations: Natural oil of wintergreen is obtained by the distillation, after maceration with water of *Gaultheria procumbens* L. (Ericaceæ) or of *Betula lenta*. Characters: Density at  $15^{\circ}$  C., 1.179 to 1.190; polarimetric rotation, feebly lævorotatory (*Gaultheria*) or inactive (*Betula*).—Sc. & Ind. Bull. Roure-Bertrand Fils, Grassa, October, 1909, p. 17.

Umney, J. C., commenting on the above, points out that the specific gravity of oil of wintergreen is stated as 1.189 to 1.187. Presumably the former figure should be 1.179, which would make the character approximately that of the Ph. Germ.—Chem. & Drug., Lond., 1909, v. 75, p. 581.

The White Cross Congress held in Paris in October, 1909, asserts that the oil of *B. lenta* as well as *G. procumbens* may be described as natural wintergreen.—*Ibid.*, p. 681.

Pancoast, G. L., asserts that much deception is practiced in connection with oil of gaultheria, and that much of it is offered for sale at a price far below the cost of production. He believes that the amount of so-called true oil of gaultheria sold is 10 times more than that possible to produce from the amount of herb that is actually harvested.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 119.

Schimmel & Co. (Semi-Annual Report, April, 1909, pp. 90-91) report that the demand for genuine oil of gaultheria existing exclusively in the United States has been rather less than in the pre-

ceding year. They state that parties in Carolina and New England have quite recently taken up the distillation of *G. procumbens*.

A news note asserts that it is impossible to give a guaranty of the genuineness of oil of wintergreen leaves. The distillation of this oil is in such limited quantities that it may be considered unobtainable. A compound answering all the requirements of the U. S. P. for wintergreen leaves is being supplied by essential oil houses to so-called dealers who in return resell to dealers.—Chem. & Drug., Lond., 1909, v. 74, p. 609.

Wiley, H. W., reports that investigations made in the field reveal the fact that very little genuine oil of wintergreen is being produced. Oil of birch is commonly sold as oil of wintergreen.—Ann. Rep. U. S. Dept. Agric. for 1909, 1910, p. 432.

Gane and Webster call attention to an extraordinary circular that has just been issued by a New York firm dealing in essential oils, declaring their inability to guarantee the genuineness of oil of wintergreen leaves.—Drug. Topics, New York, 1909, v. 24, p. 69.

Kraemer, Henry, believes that cultivating the herb of gaultheria was probably the most available plan to secure a reliable oil.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 119.

Vanderkleed, C. E., quotes Fritzsche Bros. to the effect that for flavoring purposes all three substances in this group are to be considered equivalent. For all medicinal purposes the three oils have to be distinctly discriminated. Particular care should be taken by the retail druggist to buy these drugs from reliable sources.—Proc. Pennsylvania Pharm. Ass., 1909, p. 128.

Pancoast and Pearson, in a discussion of the preliminary methods for determining the purity of essential oils, note that oil of gaultheria was omitted from consideration because the authors were unable to obtain an article that was beyond suspicion.—Am. Druggist, N. Y., 1909, v. 54, p. 329.

The A. Ph. A. committee on drug market asserts that true oil of gaultheria will not form a clear solution with the KOH test, but forms a more or less cloudy solution, and, on standing, small droplets of oil having a peculiar tea odor.—Drug. Topics, New York, 1909, v. 24, p. 359.

Dohme and Engelhardt report a sample of natural oil of wintergreen having a dark red color.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 718.

Woods, Charles D., reports 9 samples of spirit of gaultheria examined—3 below 90 per cent, 4 within 90 and 110 per cent, and 2 above 110 per cent of the U. S. P. standard. From 90 to 110 per cent of the U. S. P. standard is the range of variation permitted in the State of Maine.—Rep. Maine Agric. Exper. Sta. (1909), 1910, App. p. 185.

Kline, C. M., reports that samples of oil of gaultheria, having an optical rotation of  $-0^{\circ} 25'$  and  $-0^{\circ} 23'$ , behave in their reactions like true gaultheria oils, though they do not show the full gaultheria flavor.—Proc. N. W. D. A., 1909, p. 125.

Sayre and Ziefle report one sample of oil of gaultheria which was found to be below standard.—Bull. Kansas Bd. Health, 1909, v. 5, D. A. 16-23.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 58) report it difficult to ascertain the precise botanical source of commercial wintergreen oils. One sample offered as the unmixed distillate from the bark of *B. lenta* gave the following figures: Specific gravity, 1.188; optical rotation, inactive; methyl salicylate, 99.8 per cent. Similar figures were found in artificial oils examined, the ester ranging from 99.4 to 100 per cent.

See also under *Oleum Betulæ*.

#### OLEUM GOSSYPII SEMINIS.

Woods, Charles D., defines cotton seed oil as the oil obtained from the seeds of cotton plants (*Gossypium hirsutum* L., *G. barbadense* L., or *G. herbaceum* L.) and subjected to the usual refining processes; it is free from rancidity; has a refractive index ( $25^{\circ}$  C.) not less than 1.4700 and not exceeding 1.4725; and an iodine number not less than 104 and not exceeding 110. Winter-yellow cotton seed oil is expressed cotton seed oil from which a portion of the stearin has been separated by chilling and pressure, and has an iodine number not less than 110 and not exceeding 116.—Rep. Maine Agric. Exper. Sta. (1909), 1910, Ap. p. 122.

Bureau of the Census (U. S. Manufrs., 1903, Pt. 3, 535-50) gives information on cotton seed products. The value of the cotton seed products in 1905 was \$96,407,621, an increase over 1900 of \$27,680,989, or 47.1 per cent.—Chem. Abstr. Am. Chem. Soc., 1909, v. 3, p. 2877.

The Levant (Consular and Trade Reports, 3569) gives brief paragraphs on the following subjects: Extensive use of American products (cotton seed oil) in combination with olive oil; mixing of olive oil and cotton seed oil; demand for pure cotton seed oil; American cotton seed oil popular; native production of cotton, sesame, and poppy seed; manufacture of soaps, etc.—*Ibid.*, p. 2633.

An editorial (Paint, Oil, and Drug Review, 1909, v. 47, Mar. 31, p. 28) asserts that the demand for cotton seed oil depends very largely upon the price of the products with which it is brought into competition, chiefly pure lard. More than a million barrels of oil are used in conjunction with stearin in the manufacture of compound lard, and hence the demand for cotton seed oil is influenced to a large extent by the price of pure lard.

Fulmer and Manchester (*Gazz. chim. ital.*, 1909, I, p. 107) discuss the action of heat on the physical and chemical functions of cotton seed oil.—*J. d. pharm. et d. chim., Par.*, 1909, v. 29, p. 447.

Ronnet, Leon, presents some observations on the Halphen reaction.—*Ann. d. Falsif.*, 1909, v. 2, p. 232.

Garnier, L., presents a modification of the Halphen reaction.—*J. d. pharm. et d. chim., Par.*, 1909, v. 29, p. 273.

Ronnet, L., criticizes Garnier's communication.—*Ibid.*, pp. 379–380.

Matthes and Heintz report experiments on determining the nature of the unsaponifiable portion of cotton seed oil. They quote Bömer, who asserts that the unsaponifiable constituents of cotton seed oil are important factors in determining the nature of this oil.—*Arch. d. Pharm.*, 1909, v. 247, pp. 161–175.

Paal and Roth report observations on the catalytic action of the colloidal metals of the platinum group on cotton seed oil.—*Ber. d. deutsch. chem. Gesellsch., Berl.*, 1909, v. 42, pp. 1549–1550.

Wagner and Clement discuss the chemical composition of the residues known as "soap stock" and "cotton seed foots" remaining after the purification of crude cotton seed oil.—*Ztschr. f. Unters. Nahr. u. Genussm.*, 1909, v. 17, pp. 266–268.

Beadle and Stevens discuss the by-products of cotton seed and their utilization.—*J. Soc. Chem. Ind.*, 1909, v. 28, pp. 1015–1019.

Southall Bros. & Barclay (Rep., 1908–9, Birmingham, 1910, p. 10) tested six samples of cotton seed oil giving satisfactory results: Specific gravity, 0.921 to 0.924; saponification value, 192.0 to 196.5; free acid, calculated as oleic acid, 0.06 to 0.19 per cent.

Godsmark, O. C. (Life and Health), discusses the superiority of cotton seed oil to olive oil as a food product.—*J. Am. M. Ass.*, 1909, v. 53, p. 1310.

#### OLEUM HEDEOMÆ.

Capps, Pratt, McCrae, and Halsey recommended the deletion of oleum hedeomæ from the U. S. P.—*J. Am. M. Ass.*, 1909, v. 53, p. 792.

An unsigned article in "Notes and Queries" presents some historical information on the distillation of oil of pennyroyal, and some comments on the yield of oil in different seasons and condition of the herb when gathered.—*Drug. Circ., N. Y.*, 1909, v. 53, p. 633.

Beringer, George M., points out that only the American pennyroyal oil is official. There is still on the market a large amount of the foreign oil distilled from *Mentha pulegium*. As the chief constituent in both is identical, and if actions are identical, both should be officially recognized.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 812.

Vanderkleed, C. E., quotes Fritzsche Bros. to the effect that as European pennyroyal oils are distillates from *M. pulegium* L., and not from *Hedeoma pulegioides* P., they do not answer the U. S. P.

requirements, and are besides defective in solubility.—Proc. Pennsylvania Pharm. Ass., 1909, p. 128.

Roure-Bertrand Fils (Sc. & Ind. Bull. Grasse, April, 1909, p. 64), in a review of the essential oil industry in Spain, point out that pennyroyal is met with chiefly in the neighborhood of Alicante. The total production of Spain this year may amount to 2,000 kilos of essential oil.

Kline, C. M., reports on four samples of oil of hedeoma, the specific gravity of which varied from 0.929 to 0.931. The optical rotation of three of the samples varied from  $+12^{\circ}$  to  $+13^{\circ}$ ; much below the U. S. P. standard. The fourth sample exceeded the U. S. P. requirement, having an optical rotation of  $+24.5^{\circ}$ .—Proc. N. W. D. A., 1909, p. 125.

Scoville, W. L., reports on seven lots of oil of pennyroyal, some rejected because it failed to react with any of the official tests: Rotation,  $+14.4^{\circ}$  to  $+32^{\circ}$ ; specific gravity, 0.9200 to 0.9316.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 736.

The committee on drug market (quoting Lehn & Fink) reports 11 samples from 8 dealers: Specific gravity, 0.9134 to 0.9340; optical rotation,  $+10^{\circ} 37'$  to  $+31^{\circ} 33'$ . Two lots were insoluble in 9 volumes of 70 per cent alcohol, 1 insoluble in 5 volumes; only 2, U. S. P.—*Ibid.*, p. 736.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 45) report on 10 samples of English and French oil of hedeoma. The figures from the English are: Specific gravity, 0.927 to 0.949; optical rotation,  $+29^{\circ}$  to  $+30^{\circ}$ . All were soluble in 3 volumes and less of 70 per cent alcohol. The figures for the French oils were: Specific gravity, 0.932 to 0.948; optical rotation,  $+15^{\circ}$  to  $+19^{\circ}$ ; all soluble in 2.5 volumes of 70 per cent alcohol.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 23) examined numerous samples of European pennyroyal oil, two of which were classed as abnormal on account of low specific gravity and rotation. Their figures were: Specific gravity, 0.9166 to 0.922; optical rotation,  $+2.45^{\circ}$ . The figures of the normal oils were: Specific gravity, 0.9353 to 0.968; rotation,  $+14.6^{\circ}$  to  $+22.75^{\circ}$ .

#### OLEUM HYOSCYAMI COMPOSITUM N. F.

Posey, H. G., thinks that from any point of view the application of the name balsamum tranquillans to Oleum Hyoscyami Compositum N. F. is wrong, as the preparations are by no means similar.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 992.

Diehl, C. L., reports from the committee on N. F. recommending a formula for compound oil of hysocyamus, which is an adaptation of the formula for "Baume Tranquille."—*Ibid.*, p. 1080.



Schamelhout, A., calls attention to the differences between the French and Belgian compound oils of *hysocyamus*.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 55.

#### OLEUM JUNIPERI.

Dupont, Justin, reports the following definition of oil of juniper as having been adopted by the Second International Congress for the Suppression of Adulterations: Oil of juniper is obtained by the steam distillation of juniper berries, *Juniperus communis* L. (Cupressinæ). Characters: Mobile liquid, colorless or pale green in color; density at 15° C., 0.860 to 0.885; polarimetric rotation, up to +15° (100 mm.).—Sc. & Ind. Bull. Roure-Bertrand Fils, Grasse, October, 1909, p. 11.

Umney, J. C., commenting on this definition, asserts that the specific gravity of juniper oil has a wide range, and covers practically all the redistilled oils met with in commerce. The maximum limit for specific gravity might be slightly higher, otherwise it would exclude several English normal distillates which he has examined. The optical rotation is stated to be from 0 to +15°, evidently under some misapprehension; usually it is lævorotatory.—Chem. & Drug., Lond., 1909, v. 75, p. 580.

v. Soden, Hugo, points out that the constants for oil of juniper do not exclude possible adulteration; the specific gravity approximates that of turpentine and the optical rotation is at times to the right and again to the left. He suggests a specific gravity of from 0.860 to 0.880, and an optical rotation mostly lævorotatory, but not over -15°. The oil, because of its tendency to deteriorate, is to be protected from light and air.—Pharm. Ztg., Berl., 1909, v. 54, p. 250.

Gane, E. H., reports on 4 lots of oil of juniper berries with specific gravity 0.854 to 0.862, all insoluble in 10 volumes of 99 per cent alcohol. It is often mixed with turpentine.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 735.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 37) report on seven foreign oils of juniper, specific gravity, 0.8655 to 0.901; optical rotation, -2° 30' to -9° 46'; commenced to distill at 153° to 156° C., below 160° C., 5 to 10 per cent; above 200° C., 15 to 50 per cent. One sample was adulterated with fatty matter.

Southall Bros. & Barclay (Rep. 1908-9, Birmingham, 1910, p. 22) present a comparison of the figures determined for commercial "Juniper wood oil" and "Juniper berry oil."

#### OLEUM LAVENDULÆ.

Schneider, Albert, points out that lavender thrives well throughout California. The grower should also manufacture the oil.—Pacific Pharmacist, 1909-10, v. 3, p. 193.

An unsigned article, in discussing the growing of drugs in England, presents an illustration of the reaping of lavender, and discusses the distilling of oil of lavender.—Am. Druggist, N. Y., 1909, v. 54, p. 215.

A "P. J." representative describes with illustrations a Dorsetshire lavender farm.—Pharm. J., Lond., 1909, v. 29 (83), pp. 532-534.

Roure-Bertrand Fils (Sc. & Ind. Bull., Grasse, Apr., 1909, p. 62) in a review of the essential oil industry in Spain, discuss the making of oil of spike and point out that the oil is generally distilled on the spot where the plant is cultivated and in iron stills.

Lamothe, L., presents a paper on lavender; its varieties and production, faults in actual distillation, and how to provide for the future.—Bull. sc. Pharmacol., Par., 1909, v. 16, pp. 92-102.

Dupont, Justin, reports the following definition of oil of lavender as having been adopted by the Second International Congress for the Suppression of Adulterations: Oil of lavender is obtained by the distillation of the flowers of *Lavendula vera* D-C. Characters: Yellow or greenish-yellow liquid; density at 15° C., 0.880 to 0.890; polarimetric rotation,  $-3^{\circ}$  to  $-9^{\circ}$  (100 mm.); ester contents (calculated as linalyl acetate), 28 to 60 per cent.—Sc. & Ind. Bull. Roure-Bertrand Fils, Grasse, October, 1909, p. 11. See also Schamelhout, A., Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 333, and Chem. & Drug., Lond., 1909, v. 75, p. 681.

Roure-Bertrand Fils (Sc. & Ind. Bull., Grasse, October, 1909, p. 11), in commenting on this definition, point out that these figures relate to the average of normal oils of lavender and that oils of certain origin, Italian oils, for instance, may contain lower quantities of esters down to 25 per cent, without having been adulterated in the slightest degree. They also point out that oils of lavender are met with in which the ester contents have been increased by the addition of acetates, succinates, or oxalates. In doubtful cases, therefore, it is necessary to test for these products.

Umney, J. C., in discussing the proposed international standard for lavender oil, asserts that the characters recorded are those of French lavender oil, as indicated by ester percentage and specific gravity. The standard for percentage of esters (namely 28 to 60) would exclude all English oils. He has not examined a sample of genuine French lavender oil having a higher percentage of natural esters than 44.—Chem. & Drug., Lond., 1909, v. 75, p. 580.

v. Soden, Hugo, points out that lavender oil is readily decomposed on distillation with steam and should therefore be used in its crude form. The ester content (linalyl acetate) might be raised to from 33 to 35 per cent. It should be soluble in 3 parts of 70 per cent alcohol, and the solution should remain clear on further addition of

alcohol. It should have an optical rotation of from  $-3^{\circ}$  to  $-9^{\circ}$ .—Pharm. Ztg., Berl., 1909, v. 54, p. 250.

Schimmel & Co. (Semi-Annual Report, October, 1909, p. 133) can see no particular reason for this demand for ester content.

They also (*Ibid.*, April, 1909, p. 101), in discussing the Ph. Svec. IX requirements for lavender oil, assert that the rotation lies between  $-3^{\circ}$  and  $-9^{\circ}$ , and that the saponification number corresponds to a minimum content of 31.5 per cent linalyl acetate.

Vanderkleed, C. E., quotes Fritzsche Bros. to the effect that very cheap oils should not be bought, as these are mostly compounds of spike oil with a certain amount of lavender flower oils.—Proc. Pennsylvania Pharm. Ass., 1909, p. 128.

The committee on adulteration asserts that to raise the ester value of inferior oil of lavender it is common to add the esters of the fatty acids of cocoanut oil, only a small quantity being necessary.—Proc. Maryland Pharm. Ass., 1909, p. 73.

Gane, E. H., points out that very inferior grades of oil of lavender are being offered, some sophisticated with heavy oil of camphor. The samples examined had a specific gravity of 0.890 to 0.913; rotation,  $-5^{\circ}$  to  $+1^{\circ}$ ; linalool, 22.63 to 31.94 per cent.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 735.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 40) report on 22 consignments of French oil of lavender: Specific gravity, 0.893 to 0.898; optical rotation,  $-5^{\circ} 30'$  to  $-6^{\circ} 45'$ ; ester as linalyl acetate, 30.45 to 38.15 per cent; all soluble in 3 volumes and less of 70 per cent alcohol. Four samples of English were examined: Specific gravity, 0.883 to 0.900; optical rotation,  $-8^{\circ} 22'$  to  $-8^{\circ} 46'$ ; ester as linalyl acetate, 7.35 to 9.8 per cent; all soluble in 3 volumes of 70 per cent alcohol.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, pp. 22-23) assert that many samples of foreign oil of lavender offered are obviously and admittedly not genuine. An ester percentage as low as 7.92 has been met with in oils of this class. In reputable samples forming clear solutions in 3 volumes of alcohol (70 per cent) they found from 26.98 to 38.90 per cent of ester. A sample of English oil gave specific gravity 0.906; ester as linalyl acetate 13.08 per cent.

Cook, E. Fullerton, thinks the formula for tincture of lavender entirely satisfactory.—Proc. Am. Ass., 1909, v. 57, p. 1003.

#### OLEUM LIMONIS.

An editorial discusses the possible sources of oil of lemon, and points out that the lemon industry of California has become permanently established on a firm basis, and that California may in

time be an important factor in the lemon-oil industry.—Brit. & Col. Drug., 1909, v. 55, pp. 81–82.

Chace, E. M., in a comprehensive report on the by-products of the lemon in Italy, describes the extraction of the essential oil of lemon by various methods and the method of marketing the same.—Bull. No. 160, Bur. Plant Ind., U. S. Dept. Agric., 1909, p. 45.

An editorial (Oil, Paint, and Drug Reporter, New York, 1909, v. 76, Oct. 18, p. 7) discusses the lemon industry and by-products of Italy, and presents a table showing the total exports from Italy of lemon oil during the last 10 years. The annual shipments approximated 1,000,000 pounds per annum, of which quantity the United States took from 24.9 to 38.8 per cent.

Parry, Ernest J., reports that since the disaster in Sicily a great deal of adulterated lemon oil has appeared on the market, and points out that the fact that lemon terpenes are not very plentiful just now has caused the adulteration to be of a very crude character. He reports finding five samples adulterated to the extent of 30 to 50 per cent with white petroleum, four samples with castor oil, and six samples with turpentine, in addition to several samples diluted with lemon terpenes.—Chem. & Drug., Lond., 1909, v. 74, p. 121.

Woods, Charles D., defines oil of lemon as the volatile oil obtained by expression of alcoholic solution, from the fresh peel of the lemon (*Citrus limonum* L.); it has an optical rotation ( $25^{\circ}$  C.) of not less than  $+60^{\circ}$  in a 100 mm. tube, and contains not less than 4 per cent by weight of citral.—Rep. Maine Agric. Exper. Sta. (1909), 1910, App. p. 120.

Dupont, Justin, reports the following definition of oil of lemon as having been adopted by the Second International Congress for the Suppression of Adulterations: Oil of lemon is obtained by pressing the fresh rinds of *C. limonum* Risso. Characters: Pale yellow liquid; density at  $15^{\circ}$  C., 0.857 to 0.862; polarimetric rotation,  $+57^{\circ}$  to  $+65^{\circ}$  at  $20^{\circ}$  C.; solubility, 1 part of oil dissolves in from 0.3 to 5 parts of 95 per cent alcohol; residue from evaporation on water bath, 2 to 5 per cent.—Sc. & Ind. Bull. Roure-Bertrand Fils, Grasse, October, 1909, p. 12.

See also Schamelhout, A., Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 333.

Roure-Bertrand Fils (Sc. & Ind. Bull., Grasse, October, 1909, p. 12), in commenting on this definition assert that until recently it was supposed that pure oil of lemon contained no pinene, but this view can no longer be maintained, as pinene has been discovered in a large number of pure essential oils. They also point out that the richness of citral is not a criterion of the purity of oil of lemon, as citral extracted from oil of lemon grass, the price of which is low, can be readily added as an adulterant.

Umney, J. C., commenting on the proposed international standard for lemon oil asserts that the figures for specific gravity are in his opinion satisfactory, 0.857 to 0.862; but the lower limit for optical rotation, namely,  $+55^{\circ}$ , is too low. He has examined a pure oil with a lower rotation than  $57^{\circ}$ . The report mentions the fact that the content of citral is not a criterion for the purity of oil of lemon, a very sage and perfectly true statement.—*Chem. & Drug., Lond.*, 1909, v. 75, p. 581.

v. Soden, Hugo, thinks that the lower limit for the specific gravity of oil of lemon should be 0.857 instead of 0.858, as given in the Ph. Germ. IV. The optical rotation should be required to be from  $+58^{\circ}$  to  $+65^{\circ}$ . The determination of the citral content he thinks is as yet impractical.—*Pharm. Ztg., Berl.*, 1909, v. 54, p. 250.

Heinrich Haensel (Half-Yearly Report, April, 1909, p. 15) reports that a sample of Spanish oil of lemon sent him from Barcelona exhibited the following properties: The oil was colorless and of feeble aroma, had a specific gravity of 0.8524, and an optical rotation at  $21^{\circ}$  of  $+35.65^{\circ}$  which calculated at  $20^{\circ}\text{C.}$  was  $+36.79^{\circ}$ .

Feil, Joseph, in discussing oil of lemon, points out that the citral assay of the oil is of little value as the chemical, citral, can be obtained more cheaply from other plants, and does not possess the real lemon odor. The optical rotation test is better, but after all, the odor is the ultimate test for this as well as for any other flavoring substance.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 125.

LaWall, Charles H., states that the citral test under oil of lemon has been criticized as giving erroneous results, and as it is a complicated process requiring exceedingly skillful manipulation, the pharmacist is advised not to waste his time in attempting to apply it.—*Proc. New Jersey Pharm. Ass.*, 1909, p. 103.

Hiltner, R. S., outlines a method for the determination of citral in lemon extracts and lemon oils.—*J. Ind. Eng. Chem.*, 1909, v. 1, pp. 798–800.

Chace, E. M., in a report as associate referee on flavoring extracts, outlines methods for the examination of oil of lemon.—*Proc. Ass. Off. Agric. Chem.*, 1909, 26th Ann. Conv., pp. 108–109 (*Bull. Bur. Chem., U. S. Dept. Agric.*, 1910, No. 132).

Fleissig discusses the examination of oil of lemon, the determination of the boiling point, and the determination of the temperature at which various fractions of the oil distil over.—*Schweiz. Wchnschr. f. Chem. u. Pharm.*, Zürich, 1909, v. 47, pp. 61–65.

Bennett, Alex. H., discusses the determination of aldehydes in oil of lemon and reports experiments with known materials and the results with essence of lemon.—*Analyst, London*, 1909, v. 34, pp. 14–17.

Chace, E. M., discusses the occurrence of pinene in lemon oil, working with specimens which he secured in Sicily, the genuineness of which he could himself certify.—*Circ. Bur. Chem., U. S. Dept. Agric.*, 1909, No. 46, p. 24. See also *J. Ind. Eng. Chem.*, 1909, v. 1, pp. 18-27, and *Chem. & Drug., Lond.*, 1909, v. 75, p. 824.

An editorial (*Pharm. J., Lond.*, 1909, v. 29 (83), p. 662) comments on the investigations made by the Bureau of Chemistry, U. S. Department of Agriculture, in regard to the constituents of certain lemon oils imported into the United States from Sicily.

An editorial (*Chem. & Drug., Lond.*, 1909, v. 75, pp. 785-786) reviews the controversy between the U. S. Customs authorities in New York and the Messina exporters.

Parry, Ernest J., discusses lemon oil and the pinene question, and quotes a number of investigators. He concludes that the presence of traces of pinene is, in fact, normal to pure oil of lemon, and can in no sense be regarded as evidence of adulteration.—*Ibid.*, p. 876. See also *Oil, Paint, and Drug Reporter*, New York, Dec. 27, 1909, v. 76, p. 26.

Wiley, H. W., expresses surprise at the comments offered by Parry "on a controversy about which he has been obviously so poorly informed," and points out that considerable experience with oils has shown that, by ordinary means of distillation, pinene can not be found in the distillate by the formation of the nitroso-chloride crystals and their examination under the microscope. He also asserts that since the exclusion of the questionable lots of oil of lemon, with one exception, no lots have been submitted for importation in which pinene could be detected.—*Chem. & Drug., Lond.*, 1909, v. 75, p. 913.

Burgess, Herbert E., in a contribution to the lemon oil controversy, points out that while the quantity of pinene present in oil of lemon is small, it is quite sufficient to make an appreciable difference in the rotation of the first 10 per cent of distillate when the oil is carefully distilled under reduced pressure, the difference being 6° to 7°, but if turpentine had been added to, say, 10 per cent the difference would be 12° to 14°. He maintains that the only way of arriving at the true value and purity of lemon oil is to carry out a careful fractionation into three parts, and to determine their constants by means of the polarimeter and refractometer.—*Ibid.*, p. 946.

An editorial (*Oil, Paint, and Drug Reporter*, New York, 1909, v. 76, Nov. 15, p. 7) discusses adulterated lemon oil and the controversy that has arisen regarding the presence of pinene in pure oil of lemon.

Schimmel & Co. (Semi-Annual Report, October, 1909, pp. 62-65) discuss the results of recent investigations on the chemistry of the terpene mixture contained in lemon oil.

Roure-Bertrand Fils (Sc. & Ind. Bull. Grasse, April, 1909, pp. 113-116) review some of the recent literature relating to oil of lemon.

Brandel, I. W., reviews the literature relating to oil of lemon that appeared during the years 1901-1903, and also calls attention to the requirements for this oil in the Swedish and Belgian Pharmacopœias.—Midl. Drug., 1909, v. 43, pp. 112-114.

Marris, G. W., points out that the Ph. Japon. III includes no real tests of quality for oil of lemon. The adulterator improves his methods so quickly on the heels of a new test that this oil would appear to have been given up as a bad job. It would be difficult to frame a monograph within the limitation of a pharmacopœia which would effectually prevent fraud.—Chem. & Drug., Lond., 1909, v. 74, p. 380.

Schamelhout, A., commenting on the discussion of lemon oil (Semi-Ann. Rep. Schimmel & Co., April, 1909, p. 51) notes that the rotatory power of citron oil of the Ph. Belg. III may vary between  $+58^{\circ}$  and  $+65^{\circ}$ ; its density between 0.858 and 0.861. These limits are therefore rather strict.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 202.

Schimmel & Co. (Semi-Annual Report, April, 1909, p. 102) in discussing the Ph. Svec. IX requirements for lemon oil, point out that pure oils of less than 0.857 specific gravity are very rare, and that only on very exceptional occasions has a specific gravity as low as 0.856 been observed.

Gane and Webster point out that a product is being offered as washed oil of lemon for the preparation of flavoring extracts and that examination shows it to be a very poor product, greatly deficient in odor and taste and one that is likely to get purchasers in trouble with boards of health and food commissions. It seems to be a lemon oil from which the citral has been largely extracted, which accounts for its poor odor and flavoring properties.—Drug Topics, New York, 1909, v. 24, p. 229.

Bachman, Gustave, reports that in the three samples of oil of lemon examined, he found 1.94, 2.82 and 3.91 per cent respectively of aldehyde calculated as citral.—Proc. Minnesota Pharm. Ass., 1909, p. 71.

Dohme and Engelhardt report one sample of lemon oil containing water.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 718.

Scoville, W. L., reports continued difficulty in obtaining 4 per cent citral content. He is obliged to accept some oils below this standard.—*Ibid.*, p. 735.

Stallman asserts that oil of lemon is sometimes adulterated with turpentine and sometimes with alcohol.—*Ibid.*, p. 735.

The committee on drug market (quoting Lehn and Fink) reports two of seven samples containing turpentine, one as much as 38 per cent. Official method of determining citral is of doubtful practicability.—*Ibid.*, p. 735.

Gane, E. H., reports on five samples of oil of lemon: Specific gravity, 0.849 to 0.8535; rotation,  $+54^{\circ} 25'$  to  $61^{\circ} 25'$ ; citral, approximately, 3.5 to 4 per cent.—*Ibid.*, p. 735

### OLEUM LINI.

Sage, C. Edward, asserts that the development of the oil industry in the world has been very largely due to the production of linseed oil. He reviews the history of this oil, its present market importance and comments on the pharmacopœial tests.—Pharm. J., Lond., 1909, v. 29 (83), pp. 756-757.

Ennis, W. D. (New York, 1909, pp. XIV+ 316, figs. 71), in a book on linseed oil and other seed oils, discusses the development of the linseed oil industry in the United States, the handling of seed and the disposition of its impurities.—Exp. Sta. Rec., 1910, v. 22, p. 608.

Rollett, Adolph, presents a contribution to our knowledge of the chemistry of linseed oil in which he discusses linolic acid.—Ztschr. f. physiol. Chem., 1909, v. 62, pp. 410-431.

Paal and Roth report observations on the catalytic action of the colloidal metals of the platinum group on linseed oil.—Ber. d. deutsch. chem. Gesellsch., Berl., 1909, v. 42, pp. 1550-1551.

Erdmann and Bedford report observations on the constitution of linseed oil and the chemistry of the contained linolenic acid.—*Ibid.*, pp. 1324-1333.

Erdmann, Bedford, and Raspe discuss the constitution of linolenic acid.—*Ibid.*, pp. 1334-1346.

At the recent meeting of the American Society for Testing Materials, at Atlantic City, N. J., the subcommittee on linseed oil delivered a very thorough and interesting report and recommended that a raw linseed oil should be considered pure when it tests between the following:

|   | Maximum. | Minimum. |
|---|----------|----------|
| Sp. gr. at 15.5° C.....                 | 0.936    | 0.932    |
| Sp. gr. at 25° C.....                   | .931     | .9270    |
| Acid number.....                        | 6        |          |
| Saponification number.....              | 192      | 189      |
| Unsataponifiable matter..... per cent.. | 1.50     |          |
| Refractive index at 25° C.....          | 1.4805   | 1.4790   |
| Hanus iodine number.....                | 190      | 178      |

The committee says: "These tests and specifications are advised simply for consideration during the coming year. They should be subjected to further rigid examination by your committee and be made to run the gauntlet of the most severe criticism before their



formal adoption."—Paint, Oil, and Drug Review, 1909, v. 48, July 14, p. 23.

Dunlap, Renick W., reports seven samples of raw oil of linseed examined, one was passed.—Rep. Ohio Dairy & Food Com., 1909, p. 62.

Sargeant, F. Pilkington, asserts that linseed oil (raw oil) is used as the basis of many cattle dressings and for grease banding of trees and similar purposes.—Pharm. J. Lond., 1909, v. 29 (83), p. 236. Also Drug Topics, New York, 1909, v. 24, p. 356.

#### OLEUM MENTHÆ PIPERITÆ.

An unsigned article discusses the cultivation and harvesting of peppermint and the production of the oil.—Bull. Imp. Inst., 1909, v. No. 7, pp. 184–193.

Schimmel & Co. (Semi-Annual Report, April, 1909, p. 76) briefly discuss the reduction in the production of American peppermint and assert that interest is being lost in the cultivation of this plant, and it is becoming more difficult every season to find special qualities as no new plantations are being laid down and the old plantations are not attended to and cleaned with sufficient care. See also *Ibid.*, October, 1909, pp. 94–97.

An editorial (Chem. & Drug, Lond., 1909, v. 75, p. 544) discusses the market conditions of American peppermint oil.

Eliel, Leo, points out that last season was an off season for peppermint oil in his neighborhood, and that much of the peppermint oil ran low in menthol content, this not being due to any adulteration, but a natural occurrence.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 60.

Schimmel & Co. (Semi-Annual Report, October, 1909, pp. 98–99) discuss the Japanese peppermint oil market, present a map of the Japanese peppermint districts, and a table showing the estimates for the 1909 crop.

Dupont, Justin, reports definitions for English, American, French, and Japanese dementholized oil of peppermint adopted by the Second International Congress for the Suppression of Adulterations.

The following is the definition for American oil of peppermint: American oil of peppermint is obtained from various species of *Mentha*. Characters: Colorless, yellow or greenish-yellow oil; density at 15° C., 0.900 to 0.920; polarimetric rotation, –25° to –33° (100 mm.); total menthol, 50 to 64 per cent; free menthol, 40 to 55 per cent; combined menthol, 10 to 24 per cent.—Sc. & Ind. Bull. Roure-Bertrand Fils, Grasse, October, 1909, pp. 13–14.

See also Schamelhout, A., Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 333.

v. Soden, Hugo, points out that the oils obtained from *Mentha piperita*, or its varieties in different countries, vary considerably. He calls attention to some of the differences and points out that a gen-

eral requirement might include specific gravity of from 0.900 to 0.912, an optical rotation of  $-20^{\circ}$  to  $-33^{\circ}$ , and the oil should be freely soluble in 4 parts of 70 per cent alcohol and remain clear on further addition of alcohol. Free menthol content should vary from 45 to 60 per cent and the menthol ester (menthyl acetate) from 5 to 15 per cent.—*Pharm. Ztg.*, Berl., 1909, v. 54, p. 250.

Schimmel & Co. (Semi-Annual Report, October, 1909, p. 133) point out that their observations would indicate a specific gravity of from 0.900 to 0.910, and an optical rotation of  $-23^{\circ}$  to  $-30^{\circ}$  would more nearly comply with commercial conditions. They also suggest a requirement for total menthol content of 50 to 66 per cent. They expressly abstain from insisting on an absolute clear solution in dilute alcohol, for in even good English oils slight opalescence is occasionally noticeable.

Roure-Bertrand Fils (Berichte, April, 1909, p. 40) give the particulars of the progress of their investigation of French peppermint oils. By fractional distillation of the oil, which had previously been saponified, they isolated and identified the following constituents: isovaleric aldehyde; isoamylic alcohol; l-pinene;  $\Delta^2$ -p-menthene (?); cineol. These constituents amounted to about 6 per cent of the oil examined. Analysis also showed the oil to contain 38 per cent of free and 13.5 per cent of esterified menthol, as well as 6.4 per cent of menthone.—*Semi-Ann. Rep.* (Schimmel & Co.), October, 1909, p. 98.

Wiley, H. W., reports that an investigation of the various tests for oil of peppermint is now being made, and that authentic specimens of this oil have been secured for experimentation.—*Ann. Rep. U. S. Dept. Agric.* for 1909, 1910, p. 432.

LaWall, Charles H., states that the acetylation test for important constituents, as given under the oils of peppermint, rosemary, and sandalwood, is so complex and requires so much special apparatus as to be unsatisfactory for any but a trained analyst working with complete laboratory facilities.—*Proc. New Jersey Pharm. Ass.*, 1909, p. 104.

Schimmel & Co. (Semi-Annual Report, April, 1909, p. 102) in discussing the Ph. Svec. IX requirements for peppermint oil, assert that both English and American oils answer these requirements. The iodine reaction as a test for this oil is out of date and purposeless.

Vanderkleed, C. E. quotes Fritzsche Bros. to the effect that only rectified oils come up to the standard of the U. S. P. Most of the oils as bought from the producers should be rejected by the retail druggist.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 128.

The committee on drug market (quoting Lehn & Fink) reports carefully distilled oil showing traces of sulphur compounds, although meeting all other official requirements. The amount of ester present

will vary according to the state of development of the plants when distilled; if inflorescence is well developed, ester contents will be high. Of late years the specific gravity of natural oil has been lowered and menthol content diminished.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 736.

Gane, E. H., reports 16 samples with specific gravity 0.895 to 0.9076; rotation,  $-21^{\circ}$  to  $-28^{\circ} 5'$ ; ester, 4.69 to 9 per cent; menthol, 50.2 to 62 per cent. Six were soluble in 3 parts of 70 per cent alcohol, 10 in 4 parts. Redistilled, ranged in specific gravity from 0.902 to 0.908; rotation,  $-23^{\circ}$  to  $-28^{\circ} 25'$ ; ester, 7.4 to 9.13 per cent; menthol, 59 per cent to 66.75 per cent. Three were soluble in 3 parts of 70 per cent alcohol, 2 in four parts of the same solvent.—*Ibid.*, p. 736.

Kline, C. M., reports on a sample of oil of peppermint with a specific gravity of 0.916, optical rotation,  $-16^{\circ} 25'$ , and not soluble in 70 per cent alcohol nor in 3 volumes of 80 per cent. The sample had only a slight resemblance to pure peppermint and seemed to be full of weed products.—Proc. N. W. D. A., 1909, p. 126.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 45) report on 5 samples English oil of peppermint: Specific gravity, 0.9045 to 0.906; optical rotation,  $-26^{\circ} 20'$  to  $-30^{\circ}$ ; menthol (total), 52 to 61 per cent; menthyl acetate, 6 to 9.2 per cent. Ten American oils were examined: Specific gravity, 0.901 to 0.906; optical rotation,  $-26^{\circ}$  to  $-27^{\circ} 45'$ ; menthol (total) 55 to 65 per cent; menthyl acetate, 6.9 to 8.13 per cent.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 23) report examining a very large number of peppermint oils of all varieties, and present a comparative table showing the constants of English, American, and Japanese oils, the figures as usual varying between comparatively narrow limits.

#### OLEUM MENTHÆ VIRIDIS.

Schimmel & Co. (Semi-Annual Report, April, 1909, p. 85) assert that but little spearmint is nowadays cultivated in the State of New York, which is to be regretted, because the oil yielded by the New York herb was superior in quality to the oil from Michigan. They also report an examination of Hungarian spearmint oils.

The same firm (*Ibid.*, p. 85) reports that Hungarian spearmint oil is richer in carvone than German or American oil.

They also (*Ibid.*, October, 1909, p. 113) report that the crop of oil of spearmint in Michigan and in Indiana promises to be abundant.

The committee on drug market (quoting Lehn & Fink) reports one sample of oil of spearmint containing oil of peppermint.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 737.

Gane, E. H., reports several samples containing oil of peppermint, one kerosene. Five samples tested as follows: Specific gravity, 0.882 to 0.9277; rotation,  $-21^{\circ} 50'$  to  $-47^{\circ}$ . Three were soluble in equal parts of 80 per cent alcohol, 2 were insoluble and were rejected.—*Ibid.*, p. 737.

Kline, C. M., reports on a sample of oil of spearmint: Specific gravity, 0.927; optical rotation,  $-49^{\circ} 30'$ ; the latter figure a trifle above U. S. P. limits, the oil being otherwise normal.—Proc. N. W. D. A., 1909, p. 126.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 52) report on 2 specimens of spearmint oil: English variety, 0.958, foreign, 0.928 in specific gravity; English,  $-44^{\circ} 0'$ , foreign  $-47^{\circ} 0'$ , optical rotation. Both were soluble in an equal volume of 90 per cent alcohol.

#### OLEUM MORRHUÆ.

Schamelhout, A., states that, according to the Second International Congress for the Repression of Adulteration (Paris, 1909), the density of cod liver oil should be 0.920 to 0.930 (Ph. Belg. III, 0.922 to 0.931). Iodine index (after 4 hours' contact) not below 140 nor above 170. The Ph. Belg. III indicates after 12 hours' contact, 140 to 156. The section recognized that it was not practicable to determine an iodine index after 12 hours' contact. Saponification index, 180 to 195; according to the Ph. Belg. III, which does not fix a lower limit, it should not exceed 196. The acidity, expressed as oleic acid, should not exceed 5 per cent. The section has suppressed the reaction with nitric acid, which has no great value.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 337.

Umney, J. C., asserts that the figures for iodine value (140–170) are evidently based on 4 hours' absorption, higher figures being obtained for the full time absorption of 18 hours. The U. S. P. gives 140 to 150 for 4 hours, while the Ph. Gr. and Ph. Fr. give 140 to 152, also for 4 hours' absorption.—Chem. & Drug., Lond., 1909, v. 75, p. 579.

An editorial (Brit. & Col. Drug., 1909, v. 55, pp. 449–450), commenting on cod liver oil, asserts that the only certainty in connection with cod liver oil is its uncertainty. The editorial also reproduces tables showing the amount of oil produced in Lofoten for the years 1897 to 1909, and the oil produced from June, 1896, to May 15, 1909.

Tolman, L. M., reports a study of the fatty acids of fish oils.—J. Ind. Eng. Chem., 1909, v. 1, pp. 340–345.

Rathje, A., reviews the origin, uses, and composition of cod liver oil and points out that the exact method of its action is as yet unsolved.—Pharm. Ztg., Berl., 1909, v. 54, p. 137. See also D.-A. Apoth. Ztg., N. Y., 1909–10, v. 30, p. 3.

Hirayama, Matsu, reports observations on the acid number, saponification number, and iodine number of Japanese cod liver oil.—*J. Pharm. Soc., Japan*, 1909, pp. 95–99.

Bachman, Gustave, reports that in the cod liver oil examined he found 134 per cent minimum, and 145.2 per cent maximum, iodine value.—*Proc. Minnesota Pharm. Ass.*, 1909, p. 71.

Pearson, W. A., reports one lot of cod liver oil that had an iodine number of 136.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 180.

Street, John Phillips, reports 70 samples of cod liver oil examined, 4 of inferior quality. The U. S. P. tests and methods were found to be so unsatisfactory that those of the Official Agricultural Chemists were adopted instead.—*Rep. Connecticut Agric. Exper. Sta.* (1909), 1910, p. 257.

The Belgian inspectors of pharmacies report that they found good cod liver oil, but the exigencies of commerce and the prejudices of the public oblige pharmacists to have also a brown oil which leaves much to be desired and of which the reactions are not frank.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 550.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 23) report favorably on 30 samples of Norwegian cod liver oil. Figures obtained from 2 English oils differed from their standards: Specific gravity, 0.923 and 0.925; refractive index,  $+36^\circ$  and  $+36.5^\circ$ ; iodine value, 141 and 118. They assert that Newfoundland oil of good quality now gives figures nearly identical with those obtained from the Norwegian variety.

Southall Bros. & Barclay (*Rep.*, 1908–9, Birmingham, 1910, p. 10) present typical results for specific gravity, saponification value, iodine absorbed, free acid calculated as oleic acid, unsaponifiable matter, refractive index at  $15.5^\circ$  C., and color tests. A sample offered to them as genuine Norwegian oil gave very different results in these particulars.

Sheard, S. A., in an English patent specification, describes an apparatus for the manufacture of cod liver oil emulsion.—*J. Soc. Chem. Ind.*, 1909, v. 28, p. 30.

Börner, B., discusses the making of emulsion of cod liver oil, and the requirements that are to be made of a satisfactory emulsion; also gives formulas for emulsion of cod liver oil and a formula for an aromatic spirit to be used as flavoring.—*Apoth. Ztg., Berl.*, 1909, v. 24, pp. 211–212. See also *D.-A. Apoth. Ztg., N. Y.*, 1909–10, v. 30, p. 16.

Craig, Hugh, presents a formula for extract of malt with cod liver oil to be included in the National Formulary.—*D.-A. Apoth. Ztg., N. Y.*, 1909–10, v. 30, p. 152.

Harrison, E. F., reports examinations of commercial samples of cod liver oil with malt extract, and presents a table showing the

percentage of oil, diastasic value of the extract, and the maltose per cent in the extract.—Pharm. J., Lond., 1909, v. 29 (83), p. 148. See also Year-Book of Pharmacy, Lond., 1909, pp. 335–337.

Bedell, M. I., outlines a method for the estimation of oil in extract of malt and cod liver oil.—Pharm. J., Lond., 1909, v. 28 (82), p. 433.

The Belgian inspectors of pharmacies report that emulsion of cod liver oil rarely meets the pharmacopœial indications. The different manufacturers who make a specialty of it prepare it according to their own fancy. While there may be no difference in aroma, the proportion of oil is very variable, and in some samples the oil is partially saponified by lime.—J. d. pharm. d'Anvers, 1909, v. 65, p. 626.

See also Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 269.

An editorial (Chem. & Drug., Lond., 1909, v. 74, pp. 862–863) comments on a contribution on the function of the liver in relation to the metabolism of fats, by J. B. Leathes, who presents some interesting suggestions regarding the probable function of the liver and the possible uses of cod liver oil.

#### OLEUM MYRCIÆ.

Schimmel & Co. (Semi-Annual Report, April, 1909, pp. 21–22) quote Watts and Tempany, who report upon their researches into the question of how far the age of bay leaves affects the yield of oil and the properties of the oil produced.

Lehn & Fink (Annual Report for 1909, pp. 44–47) quote Gilde-meister and Hoffmann concerning the properties of oil of bay. The phenol content of this oil is considered at length. One sample examined by them had been fortified by clove oil in order to give a higher phenol content.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 12) report that 3 of 6 samples examined were inferior in quality.

Southall Bros. & Barclay (Rep., 1908–9, Birmingham, 1910, p. 19) assayed 5 samples of bay oil for phenols, 1 yielding but 50 per cent was rejected as of unsatisfactory quality; the specific gravity of this sample was 0.956. The other samples had a specific gravity of from 0.986 to 0.992; the phenols, 55 to 69 per cent.

#### OLEUM MYRISTICÆ.

Schimmel & Co. (Semi-Annual Report, October, 1909, p. 133) point out that while v. Soden suggests an optical rotation of  $+8^\circ$  for oil of nutmeg, they find  $+7^\circ$  would be more nearly correct.

Schamelhout, A., commenting on the discussion of nutmeg oil (Semi-Ann. Rep. Schimmel & Co., April, 1909, p. 72) states that the oil of nutmeg of the Ph. Belg. III has a density lying between 0.865 and 0.920.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 205.

Vanderkleed, C. E., quotes Fritzsche Bros. to the effect that only the oils distilled from the nuts will answer the official requirements, not the oils distilled from the hulls, which should be sold under the name of oil of mace.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 128.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 23) tested four specimens of nutmeg oil which showed a very considerable variation in physical properties: Specific gravity, 0.880 to 0.903; rotation,  $+5.28^{\circ}$  to  $24.38^{\circ}$ .

#### OLEUM OLIVÆ.

Sage, C. Edward, in a paper on the vegetable oils of the Pharmacopœia, describes the olive tree, its cultivation, and the methods of preparing the oil; he also presents a table showing the analytical factors of olive oil and its possible adulterants.—*Pharm. J., Lond.*, 1909, v. 29 (83), pp. 760-762.

An editorial discusses the method of making olive oil, and points out that in southern Europe it is produced in much the same manner as in the old days of Roman prosperity.—*Meyer Bros. Drug.*, St Louis, 1909, v. 30, p. 98.

An abstract (*Seifensieder-Ztg.*, 1909, S. 4) describes some of the methods employed in Italy in the production of olive oil.—*Chem. Repert.*, Cöthen, 1909, v. 33, p. 190.

Gehe & Co. (*Handelsbericht*, 1909, pp. 85-86) discuss the economic conditions of the olive-oil market, and present a table showing the average production of oil in Italy from 1901 to 1908.

Washington, Horace Lee, consul general at Marseille, presents a report on the Mediterranean olive crop.—*Oil, Paint, and Drug Reporter*, New York, 1909, v. 75, Feb. 8, p. 28G.

An abstract points out that the exports of olive oil from Spain during 1908 amounted to 31,454,199 kilos, against 10,830,173 kilos in 1907, and 18,911,577 kilos in 1906. Italy during the same periods exported 44,703,000 kilos, 51,330,800 kilos, and 66,575,400 kilos, respectively.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 533.

A news note points out that the exports of olive oil from Algeria during 1907 showed a value of £104,360, or 2,609 tons, which was considered satisfactory.—*Ibid.*, p. 8.

Brode, Julien L., discusses the consumption of edible oils in Greece, and reports that the average production of olive oil in Greece is about 60,000 tons. The maximum production is about 70,000, and the crop failure during the past season indicates an average of about 30,000 tons.—*Oil, Paint, and Drug Reporter*, New York, 1909, v. 76, Sept. 6, p. 10.

Roure-Bertrand Fils (*Sc. & Ind. Bull. Grasse*, Apr., 1909, pp. 66-81) present a study of the present situation of the production and trade of olive oil, particularly as it applies to the south of France.

An editorial (Oil, Paint, and Drug Reporter, New York, 1909, v. 75, Mar. 22, pp. 7-8) discusses the economic position of olive oil and the desirability of making provisions for soap makers.

"Xrayser" comments on the general practice outside of London of supplying colza oil when sweet oil is asked for.—Chem. & Drug., Lond., 1909, v. 75, p. 439. See also p. 451.

Woods, Charles D., defines olive oil as the oil obtained from the sound, mature fruit of the cultivated olive tree (*Olea europæa* L.) and subjected to the usual refining processes; it is free from rancidity, has a refractive index (25° C.) not less than 1.4660 and not exceeding 1.4680; and an iodine number not less than 79 and not exceeding 90.—Rep. Maine Agric. Exper. Sta. (1909), 1910, App. p. 122.

Léger, E., discusses the chemical characters and the adulteration of olive oil.—J. d. pharm. et d. chim., Par., 1909, v. 30, pp. 69-72.

Collard, E., jr., criticises the method of purifying olive oil, and thinks it will be necessary to fix the limit of acidity of an oil intended for hypodermic injections.—Bull. pharm. d. sud-est, 1909, v. 14, pp. 149-151.

Marcille, R., points out that olive oils obtained from northern Tunis frequently yield a reaction which may lead to the conclusion that the oil is adulterated with sesame oil.—Ann. d. Falsif., 1909, v. 2, pp. 224-230.

Imbert and Durand conclude that the Villavecchia-Fabris reaction, which leads to certain erroneous conclusions in certain Algerian oils, gives reliable results when applied with Milliau's or Marcille's modification, in so far as it concerns the detection of sesame oil in olive oil. They consider that in this case it has a sensitivity vastly superior to all other reactions.—Bull. pharm. d. sud-est, 1909, v. 14, pp. 401-404.

Dietze, F., discusses the testing of olive oil and warns against the dependence on simple tests for possible contaminations.—Pharm. Ztg., Berl., 1909, v. 54, p. 260.

A news note points out that the importation of olive oil mixed with arachide nut oils continues, and is causing endless trouble to the trade. The Ph. Brit. test for pure olive oil does not, unfortunately, indicate the presence of an arachide nut oil, and therefore the mischief is not always discovered immediately.—Chem. & Drug., Lond., 1909, v. 75, p. 871.

Vasterling, Paul, discusses the detection of peanut oil in olive oil.—Pharm. Ztg., Berl., 1909, v. 54, p. 490.

Hoton, F., contributes a paper on the value of the reaction of oil of sesame, which is interesting in connection with the adulteration of olive oil.—J. d. pharm. d'Anvers, 1909, v. 65, pp. 37-39.



Dohme and Engelhardt report that olive oil from Italy is said to be subject to adulteration with sesame oil, cottonseed oil, etc. To detect these adulterations the nitric acid and phloroglucin reaction is recommended.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 717. See also p. 172.

Paal and Roth report observations on the catalytic action of the colloidal metals of the platinum group on olive oil.—*Ber. d. deutsch. chem. Gesellsch., Berl.*, 1909, v. 42, pp. 1546–1547.

Walburn, L. E., contributes a note on the keeping qualities of oleum amygdalæ and oleum olivæ.—*Arch. f. Pharm. og Chem.*, 1909, v. 16, pp. 117–123. See also *Pharm. Zentralh.*, 1909, v. 50, pp. 845–848.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 42) report examining upwards of 100 consignments and buying samples of olive oil. The figures fell, generally, within the recognized limits. Both arachis and sesame oils were found in a few samples. It is probable that arachis oil is extensively employed because of the difficulty of detection.

Southall Bros. & Barclay (*Rep.*, 1908–9, Birmingham, 1910, pp. 14–15) report on 171 samples of olive oil, this high number being largely due to the prevalence of adulteration in this article. The great bulk of the samples examined proved to be genuine olive oil, although, even with these, great differences are found in point of flavor, and amount of free fatty acid present.

*Table showing analytical results obtained by various chemists with olive oil.*

| Reporters.               | Number of samples— |           | References.  |
|--------------------------|--------------------|-----------|--|
|                          | Examined.          | Rejected. |  |
| Lynch, R. L. ....        | 27                 | 1         | <i>Rep. District of Columbia Health Off.</i> (1909), 1910, p. 51.  |
| Rose, R. E. ....         | 1                  | 1         | <i>Bull. Florida Agric. Dept.</i> , 1909, p. 110.                  |
| Woods, Charles D. ....   | 21                 | 8         | <i>Rep. Maine Agric. Exper. Sta.</i> (1909), 1910, App. pp. 98–99. |
| Lythgoe, Hermann C. .... | 263                | 86        | <i>Rep. Mass Bd. Health</i> (1909), 1910, p. 470.                  |
| Dunlap, Renick W. ....   | 9                  | 1         | <i>Rep. Ohio Dairy &amp; Food Com.</i> , 1909, p. 62.              |
| Knight, Henry G. ....    | 5                  | 1         | <i>Rep. Dairy, Food &amp; Oil Com., Wyoming.</i> 1909, pp. 77–112. |

Barton, Wilfred M., in a paper on pharmacologic fetichisms, calls attention to the fallacy in the use of olive oil as a cure for cholelithiasis, which he says is a surgical and not a medical affection. Olive oil has no effect whatever on the secretion of any of the constituents of bile or bile itself. It may give relief in biliary colic, as in other affections, through its emolient properties on the stomach and intestines.—*J. Am. M. Ass.*, 1909, v. 52, p. 1558.

Harbert, J. P., asserts that olive oil which has been rendered sterile is useful in burns, and in abrasions of the cornea by affording a protective covering to inflamed surfaces.—*Eclectic M. J.*, Cincin., 1909, v. 69, p. 530.

Graham, Evarts A., contributes a note on olive oil for post-anæsthetic nausea.—*J. Am. M. Ass.*, 1909, v. 53, p. 2094.

Additional references on the production, chemistry, and use of olive oil will be found in *Chem. Abstr.*, *Am. Chem. Soc.*, *Exp. Sta. Rec.*, *Index Medicus* and *J. Am. M. Ass.*

#### OLEUM PICIS LIQUIDÆ.

The committee on drug market (quoting Lehn & Fink) reports that much of the oil of tar that is offered is tar and not distilled oil of tar.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 737.

Pearson, W. A., reports that while the U. S. P. demands an oil having a specific gravity of 0.892 at 25° C., commercial oil seldom has this specification. He found samples having a specific gravity of 1.037, 1.038, and 1.045.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 180.

Kline, C. M., reports that commercial tar oil seldom has the U. S. P. requirement for specific gravity. The yield of oil, having a specific gravity of 0.892, from tar is said to be very small.—*Proc. N. W. D. A.*, 1909, p. 133.

#### OLEUM PIMENTÆ.

Capps, Pratt, McCrae, and Halsey recommend the deletion of oleum pimentæ from the U. S. P.—*J. Am. M. Ass.*, 1909, v. 53, p. 792.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 45) report on four samples of oil of pimenta: Specific gravity, 1.042 to 1.0435; optical rotation,  $-1^{\circ}$  to  $-2^{\circ}$ ; phenols, 79 to 82 per cent; all soluble in 2 volumes or less of 70 per cent alcohol.

#### OLEUM RICINI.

"Xrayser" points out that the name castor oil is somewhat of a puzzle. Opinions differ as to its origin. The most probable derivation, however, is that given by Hanbury, who says that the name "castor" was given to the seeds and oil of the ricinus, because by some strange mistake the plant had been called *Agnus castus* in Jamaica.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 597.

Bell, C. C., thinks that Hanbury is right and the Oxford Dictionary is wrong in regard to the name of castor oil. He also presents some interesting historical data regarding the production and use of castor oil.—*Ibid.*, p. 657. See also page 732.

Sage, C. Edward, reviews the history of castor oil, discusses its origin, and the pharmacopœial tests. He points out that the specific

rotatory power of castor oil is a character of great importance when testing a mixture of oils, for no other known [fatty] oils possess optical activity.—Pharm. J., Lond., 1909, v. 29 (83), pp. 765–766.

Schamelhout, A., notes that the French castor oil should be obtained by cold expression of the decorticated seeds of *Ricinus communis*. The Ph. Belg. III says simply that it should be an extract of the seeds.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 55.

A committee of the Syndicat général de la Droguerie française states that the Codex test always gives a colored reaction and asks that this be tolerated.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 290.

Chonowsky, B. F., reports observations on several transformations of ricinolic acid.—Ber. d. deutsch. Chem. Gesellschaft., Berl., 1909, v. 42, pp. 3339–3356.

See also article by Grün, Ad., *Ibid.*, pp. 3759–3763.

Paal and Roth report observations on the catalytic action of the colloidal metals of the platinum group on castor oil.—*Ibid.*, pp. 1543–1544.

Pearson, W. A., found a sample of castor oil containing 5 per cent of paraffin oil, which at 0° C. was clear instead of cloudy. A solution of the oil in chloroform was cloudy instead of clear.—Proc. Pennsylvania Pharm. Ass., 1909, p. 180.

Scoville, W. L., reports castor oil varying considerably in color, odor and taste.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 734.

Street, John Phillips, reports 22 samples of castor oil examined, all but one of which met the U. S. P. requirements.—Rep. Connecticut Agric. Exper. Sta. (1909), 1910, p. 249.

Dunlap, Renick W., reports 1 sample of castor oil examined, not passed.—Rep. Ohio Dairy & Food Com., 1909, p. 59.

Bachman, Gustave, reports that in the castor oil examined, he found 77.52 minimum and 80.24 per cent maximum iodine value.—Proc. Minnesota Pharm. Ass., 1909, p. 71.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 19) report on about 130 samples of castor oil. All proved to be genuine. A few failed to satisfy requirements for color, odor or limit of free acid. The latter was found to be similar to that of former years, except certain East Indian oils in which as much as a 4 per cent of free acid (as oleic) was found.

Southall Bros. & Barclay (Rep., 1908–9, Birmingham, 1910, p. 9) examined 37 samples of castor oil with the following results: Specific gravity, 0.961 to 0.965; saponification value, 180.1 to 184.2. In every instance the application of the official sulphuric acid test resulted in the formation of a distinct brown color.

Weinstein, Abraham, presents a formula for an excellent and tasteless castor oil.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1132.

Campbell, A. E., outlines a method for serving castor oil at the soda fountain.—Bull. Pharm., 1909, v. 23, p. 391.

Hague, George W., outlines a number of methods for administering castor oil.—Rocky Mt. Drug. 1909, v. 23, March, p. 34.

Earp (N. York Med. J.) recommends that castor oil be given in one dose, and that perhaps the "castor oil sandwich" is the best method. In the bottom of a glass put a small quantity of glycerin, then the oil and lastly a little sherry wine on top. Take at one draught.—Meyer Bros. Drug., St. Louis, 1909, v. 30, p. 117.

An unsigned abstract (Rev. internat. d. Med. et de Chir., 1909) discusses the methods of administering castor oil: (1) With orange juice; (2) with sugar and orange in a heated spoon; (3) with fruit or chocolate sirup and seltzer water; (4) with beer, etc.—Ann. d. pharm., Louvain, 1909, v. 15, p. 309.

May, O. B., states that castor oil may be mixed with magnesium oxide without in the least affecting its properties. The castor oil magnesia powder is stable, tasteless, odorless, readily taken, and well borne.—J. Soc. Chem. Ind., 1909, v. 28, pp. 826-827.

Harbert, J. P., asserts that castor oil which has been rendered sterile is useful in burns, and in abrasions of the cornea by affording a protective covering to inflamed surfaces.—Eclectic M. J., Cincin., 1909, v. 69, p. 530.

Magnus, R., discusses the action of castor oil as an evacuant and its influence on the intestinal tract.—Therap. Monatsh., Berl., 1909, v. 23, p. 656.

#### OLEUM ROSÆ.

Van Tuyl, J. E., points out that oil of rose was the first of our now large class of useful volatile oils. While the industry originated in China, and at one time was centered in Persia, it has spread to Bulgaria and the Mediterranean countries where climatic conditions are favorable to the cultivation of roses. He also discusses the method of production and the method of testing oil of rose.—Western Druggist, Chicago, 1909, v. 31, pp. 329-330.

Woods, Charles D., defines otto of roses as the volatile oil obtained from the petals of *Rosa damascena* Mill., *R. centifolia* L., or *R. moschata* Herrm.—Rep. Maine Agric. Exper. Sta. (1909), 1910, Ap. p. 121.

Dupont, Justin, reports the following definition of otto of rose as having been adopted by the Second International Congress for the Suppression of Adulterations: Otto of rose is obtained by the distillation with steam of various species of roses (*R. damascena*, *R. centifolia*). Characters: Density at 20° C., 0.855 to 0.865; solidifying point, +17° to +23° C.—Sc. & Ind. Bull. Roure-Bertrand Fils, Grasse, Oct., 1909, p. 15.

See also comment by Schamelhout, A.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 334, and definition in Chem. & Drug., Lond., 1909, v. 75, p. 681.

v. Soden, Hugo, suggests that the specific gravity of oil of rose at 30° C. should be from 0.849 to 0.862, and that the optical rotation should be from  $-1^{\circ} 30'$  to  $-3^{\circ}$ . It should congeal at from 19° to 23.5° C. and the total alcohol content (geraniol, nerol, and citronellol, estimated as  $C_{10}H_{18}O$ ) should be from 66 to 75 per cent. The ester content (as geranyl acetate) should be from 3 to 6 per cent; adulteration with alcohol is to be guarded against.—Pharm. Ztg., Berl., 1909, v. 54, p. 250.

Schimmel & Co. (Semi-Annual Report, October, 1909, p. 134) point out that their own experience would indicate that the specific gravity at 30° C. would vary from 0.849 to 0.863, and that the optical rotation might vary from  $-1^{\circ}$  to  $-3^{\circ}$ .

LaWall, Charles H., thinks the tests for oil of rose are not very difficult of application, but when it is considered that altogether about 5 or 10 cc. of the oil would be used in applying them, it is not likely that the retail pharmacist who purchases such a small quantity of the oil at a time would use so much valuable material, when he can rely upon the guarantee of his wholesaler for the purity of the oil.—Proc. New Jersey Pharm. Ass., 1909, p. 104.

Heinrich Haensel (Bericht, April–September, 1909, p. 40) discusses the production of oil of rose in Bulgaria and presents a table showing the production in various Cantons, which, he asserts, aggregates a total of 3905 kg.

Roure-Bertrand Fils (Sc. & Ind. Bull., Grasse, October, 1909, pp. 59–61) report that the rosebuds in Bulgaria were seriously damaged in May by white frosts, and it is estimated that the crop was spoiled to the extent of 40 or 50 per cent in the mountain villages, and 30 per cent in those on the plain. They present a table showing the amount of oil distilled in the previous year.

Schimmel & Co. (Semi-Annual Report, October, 1909, pp. 103–107) discuss the economic condition of the production of oil of rose, and present a table showing the production of pure oil of rose in Bulgaria, tabulated according to districts.

Schamelhout, A., commenting on Schimmel's statistics of Bulgarian rose oil exportation, states that the measures taken by the Bulgarian Government to prevent adulteration of this oil are still ineffective. One must conclude that much of the oil sold under this name contains little or none of the oil of rose. The figures show that for 12 years the total production was 42,938 K. and the exports 53,908 K.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 86.

Parry, Ernest J., asserts that from all accounts the adulteration of otto of rose is being carried on this year to a very great extent.

He points out that otto of rose rarely contains as much as 75 per cent of alcohols, calculated as geraniol, and any figure above this must be regarded as suspicious. He reports on five samples, all of which were sold as "guaranteed pure," and all of which were found to be adulterated.—Chem. & Drug., Lond., 1909, v. 75, p. 292. See also p. 838.

#### OLEUM ROSMARINI.

Schneider, Albert, points out that rosemary thrives well and is easily cultivated in California. The grower should also be the manufacturer.—Pacific Pharmacist, 1909-10, v. 3, p. 193.

Giaconi, J., describes the conditions under which oil of rosemary is being produced in the south of France.—Chem. Ind., Berl., 1909, v. 32, p. 405.

Roure-Bertrand Fils (Sc. & Ind. Bull., Grasse, April, 1909, p. 63), in a review of the essential oil industry in Spain, point out that rosemary is found equally distributed at very variable altitudes on the hills of the Province of Grenada; 300 to 350 kilos of plants are required to prepare 1 kilo of oil, and the annual production may be estimated at about 25,000 kilos.

Dupont, Justin, reports the following definition of oil of rosemary as having been adopted by the Second International Congress for the Suppression of Adulterations: Oil of rosemary is obtained by the distillation of the leaves and flowers of *Rosmarinus officinalis* L. Characters: Density at 15° C., 0.900 to 0.920; polarimetric rotation, +5° to +15° (100 mm.); solubility, 1 part of oil dissolves in 0.5 part of 90 per cent alcohol.—Sc. & Ind. Bull. Roure-Bertrand Fils, Grasse, October, 1909, p. 15. See also Schamelhout, A.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 334.

v. Soden, Hugo, suggests that the optical rotation of oil of rosemary should not exceed +15°. The specific gravity should be within 0.900 to 0.920 and the oil should be fairly soluble in one-half part of 90 per cent alcohol and in from 2 to 10 parts of 80 per cent alcohol. The solution on further additions of alcohol should be made clear.—Pharm. Ztg., Berl., 1909, v. 54, p. 250.

Heinrich Haensel (Half-Yearly Report, April, 1909, p. 26), reports the following constants for oil of rosemary: Specific gravity at 15° C., 0.9090; optical rotation, +5.03°; for terpeneless rosemary oil, specific gravity, 0.9376; optical rotation, +7.35°.

Schamelhout, A., states that in France the flowering tops of rosemary are officinal, while in Belgium the leaves only are employed.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 76.

Gane, E. H., reasserts that pure oil of rosemary may be either dextro- or lævo-rotary. Thirteen samples from leading dealers had a specific gravity, 0.894 to 0.906; rotation, -4° to +12° 5'; bornyl acetate, 1.7 to 5.5 per cent (8 below 3 per cent); total borneol

cent to 15.4 per cent (8 below 12 per cent); 9 were soluble in 80 per cent alcohol; 4 insoluble.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 736.

Evans Sons Lescher & Webb (Analytical Notes, 1909, v. 47) report on 8 samples of French oil of rosemary: Specific gravity, 0.9076 to 0.9112; optical rotation,  $+2^{\circ}$  to  $+8^{\circ} 8'$ .

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 24) examined 9 samples of rosemary oil, 2 of which were objected to on account of low specific gravity and lœvogyrate action on polarized light. All were soluble in 2 volumes of 90 per cent alcohol. The abnormal oils had a specific gravity of 0.8895 and 0.887; rotation,  $-0.10^{\circ}$  and  $-0.50^{\circ}$ . The normal oils had specific gravities of from 0.898 to 0.915; rotation,  $+3.0^{\circ}$  to  $+9.83^{\circ}$ .

#### OLEUM SABINÆ.

Capps, Pratt, McCrae, and Halsey recommend the deletion of oleum sabinæ from the U. S. P.—J. Am. Ass., 1909, v. 53, p. 792.

Dupont, Justin, reports the following definition of oil of savin as having been adopted by the Second International Congress for the Suppression of Adulterations: Oil of savin is obtained by the distillation of the leaves and young branches of *Juniperus sabina* L. Characters: Density at  $15^{\circ}$  C., 0.909 to 0.930; polarimetric rotation,  $+35^{\circ}$  to  $+60^{\circ}$  (100 mm.); saponification number, 107 to 125; solubility, 1 part of oil dissolves in 1 pint of 90 per cent alcohol.—Sc. & Ind. Bull. Roure-Bertrand Fils, Grasse, October, 1909, p. 16. See also Schamelhout, A.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 334, and Chem. & Drug., Lond., 1909, v. 75, p. 681.

Schimmel & Co. (Semi-Annual Report, October, 1909, p. 111) call attention to the work done by Beythien and Atenstädt on the detection of oil of savin.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 49) report on 6 consignments of savin oil: Specific gravity, 0.909 to 0.915; optical rotation,  $+50^{\circ}$  to  $+55^{\circ}$ . All were soluble in an equal volume of 90 per cent alcohol.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 25) examined 3 samples of oil of savin with the following results: Specific gravity, 0.9065 to 0.918; rotation,  $+51.10^{\circ}$  to  $55.00^{\circ}$ ; distillate below  $200^{\circ}$ , 37 to 56 per cent; saponification value of 2 of these samples 112.1 and 113.4. Owing to the fact that the figures obtained for the last two of these oils differed considerably from the standards usually laid down, they were referred to the distillers, a firm of the highest repute, who guaranteed them to be genuine distillates.

#### OLEUM SANTALI.

Dupont, Justin, reports the following definition of oil of sandalwood as having been adopted by the Second International Congress

for the Suppression of Adulterations: Oil of sandalwood is obtained by the distillation with steam of the wood of the yellow sandal tree (*Santalum album* L.). Characters: Colorless or pale yellow oil, somewhat thick; density at 15° C., 0.975 to 0.985; polarimetric rotation,  $-10^{\circ}$  to  $-20^{\circ}$  (100 mm.); solubility, completely soluble in 5 parts of 70 per cent alcohol at a temperature of 20° C., saponification number should not be higher than 25; santalol content, oil of sandalwood should contain a proportion of alcoholic principles having the properties of the bodies described under the name of santalols which, calculated on the formula  $C_{15}H_{24}O$ , should amount to not less than 90 per cent.—Sc. & Ind. Bull. Roure-Bertrand Fils, Grasse, October, 1909, pp. 15-16. See also Schamelhout, A.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 334, and Chem. & Drug., Lond., 1909, v. 75, p. 681.

Umney, J. C., points out that the optical rotation, from  $-10^{\circ}$  to  $-20^{\circ}$ , is in his opinion too wide a limit. It should be from  $-16^{\circ}$  to  $-20^{\circ}$ , within which range practically all pure oils fall. These are also the limits approximately of the British, United States, and French Pharmacopœias.—Chem. & Drug., Lond., 1909, v. 75, p. 581.

v. Soden, Hugo, calls attention to the uses and some of the secondary effects of oil of sandalwood and points out that a pure East Indian sandalwood oil should have a specific gravity of from 0.975 to 0.980, although the lower figure has been considered by eminent authorities to be too high. In reality, however, even lighter oils are sometimes obtained from sandalwood exported from the Dutch Indies so that even a further reduction of the specific gravity to 0.973 might be considered. The optical rotation of the oil should be from  $-16^{\circ} 30'$  to  $-20^{\circ}$  and the oil should dissolve in 5 parts of 70 per cent alcohol, the resulting solution remaining clear on further addition of alcohol. The oil should contain at least 92 per cent of santalol (estimated as  $C_{15}H_{22}OH$ ) in place of the 90 per cent usually required.—Pharm. Ztg., Berl., 1909, v. 54, pp. 250-251.

Schimmel & Co. (Semi-Annual Report, October, 1909, p. 134) point out that according to their own experience even oils made from the best materials occasionally contain a little less santalol than this. The commercial practice of requiring a minimum of 90 per cent is, they believe, the one in harmony with facts.

Düsterbehn reviews the Ph. Fr. V assay of oil of santal, and notes that the santalol content should not be below 90 per cent.—Apoth. Ztg., Berl., 1909, v. 24, p. 240.

Schimmel & Co. (Semi-Annual Report, April, 1909, p. 102) in discussing the Ph. Svec. IX requirements for sandal oil, assert that in normal distillates of this oil they have observed rotations a little less than  $-17^{\circ}$ .



Marris, G. W., states that sandalwood oil is described too briefly in the Ph. Japon. III, and that no difficulty would be experienced in making a mixture with cheaper oils to pass the tests given.—Chem. & Drug., Lond., 1909, v. 74, p. 380.

Bode, Kurt, reports a comprehensive study of the constituents and properties of East Indian sandalwood oil, in the course of which he reviews much of the literature relating to this product, and asserts that the composition of the oil may vary within rather wide limitations, according to the method of distillation employed.—Apoth. Ztg., Berl., 1909, v. 24, pp. 17-19.

Gane and Webster point out that some confusion seems to exist in the trade as to the composition of West Indian sandal oil. They describe this product in detail and state that nothing is known of its medicinal virtues.—Drug Topics, New York, 1909, v. 24, p. 181. See also Proc. Am. Pharm. Ass., 1909, v. 57, p. 736.

Vanderkleed, C. E., quotes Fritzsche Bros. to the effect that only the East Indian variety of oil of sandalwood distilled from *Santalum album* is official. The so-called "West Indian" oil is distilled from *Amyris balsamifera* L. and contains no "Santalol," but, in its place, a different alcohol known as "Amyrol."—Proc. Pennsylvania Pharm. Ass., 1909, p. 128.

Gane and Webster report a sample of sandal oil with a specific gravity of 0.909, optical rotation,  $-17^{\circ} 40'$ ; santalol, 90.3 per cent; insoluble in 20 volumes of 70 per cent alcohol. The sample evidently had been reduced with the so-called West Indian oil or cedarwood oil.—Drug Topics, New York, 1909, v. 24, p. 148. See also p. 37, and Proc. Am. Pharm. Ass., 1909, v. 57, p. 737.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 48) report the following constants for oil of santal: Specific gravity, 0.974 to 0.979; optical rotation,  $-15^{\circ} 40'$  to  $-19^{\circ}$ ; ester, as santalyl acetate, 3.3 to 4.6 per cent; total santalol, 92.44 to 94.07 per cent.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 25) assert that considerable uniformity in properties has characterized the numerous samples of sandalwood oil examined. As before noted they find it necessary to employ a temperature of  $20^{\circ}$  C. in many cases to effect solution in 6 volumes of 80 per cent alcohol. The figures are: Santalol, 90.89 to 98.57 per cent; specific gravity, 0.974 to 0.980; rotation,  $-16.25^{\circ}$  to  $-18.60^{\circ}$ .

#### OLEUM SASSAFRAS.

Gane, E. H., reports that oil of sassafras is still sometimes mixed with heavy oil of camphor and with so-called artificial oil of sassafras, which is simply a fraction of camphor oil. Three lots had a specific gravity of 1.065 to 1.072; rotation,  $+3^{\circ}$  to  $+3^{\circ} 75'$ ; all were

soluble in 90 per cent alcohol.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 737.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 49) report on 2 samples of oil of sassafras: Specific gravity, 1.080 and 1.074; optical rotation,  $+2^{\circ} 22'$  and  $+3^{\circ} 30'$ ; both being soluble in 1.5 volumes 90 per cent alcohol. The foreign oils were found to have a specific gravity of from 1.073 to 1.080; optical rotation,  $+2^{\circ} 50'$  to  $+3^{\circ} 8'$ ; and were soluble in 3 volumes, or less, of 90 per cent alcohol.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 25) report examining a considerable number of parcels of oil of sassafras, the results, for the most part, being satisfactory. One sample was objected to on account of low specific gravity, 1.031. The specific gravity of the remaining samples varied from 1.061 to 1.080; rotation,  $+0.86^{\circ}$  to  $+3.75^{\circ}$ .

Schimmel & Co. (Semi-Annual Report, October, 1909, p. 111) call attention to notes on a new use for sassafras oil. It is reported that this oil has been successfully employed for the destruction of the eggs of lice, and also against the bites and stings of insects. If applied immediately after the sting, the oil is said to prevent all disagreeable aftereffects. A camphor oil containing safrol has been employed for similar purposes.

#### OLEUM SINAPIS VOLATILE.

Capps, Pratt, McCrae, and Halsey recommend the deletion of oleum sinapis volatile from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

Dupont, Justin, reports the following definition of oil of mustard as having been adopted by the Second International Congress for the Suppression of Adulterations: Oil of mustard is obtained by the distillation of the seeds of various species, among others of *Brassica nigra* L. and *Sinapis juncea* L. Characters: Density at  $15^{\circ}$  C., 1.016 to 1.030; solubility, 1 part dissolves in 8 parts of 70 per cent alcohol.—Sc. & Ind. Bull. Roure-Bertrand Fils, Grasse, October, 1909, p. 13.

v. Soden, Hugo, points out that synthetic oil of mustard costs but one-fifth as much as does the natural oil. He recommends that because of the increasing difficulty of distinguishing between the two the Pharmacopœia might recognize isosulfocyanallyl, the active ingredient of the natural oil. Pure isosulfocyanallyl occurs as a colorless or slightly yellowish liquid, having the odor of oil of mustard, a specific gravity of 1.022 to 1.024, and is freely soluble in 3 parts of 80 per cent alcohol.—Pharm Ztg., Berl., 1909, v. 54, p. 251.

Schimmel & Co. (Semi-Annual Report, October, 1909, p. 133) point out that v. Soden justly regards the incorporation of artificer<sup>1</sup>

mustard oil as necessary, and gives for this as limits of value a specific gravity of 1.022 to 1.024. They find that, in the case of their own preparation, these limits lie between 1.020 and 1.025, and, in order not to exclude the natural oil from medicinal use, it would be necessary to specify a specific gravity of from 1.014 to 1.025.

Vanderkleed, C. E., quotes Fritzsche Bros., who point out that the Pharmacopœia requires a distillate from the mustard seed, and that artificial oils will not answer, though they are identical with the natural oil.—Proc. Pennsylvania Pharm. Ass., 1909, p. 128.

Schamelhout, A., notes that the artificial oil of mustard is alone officinal in France, while in Belgium the natural oil is officinal under the same title as the artificial.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 5.

Düsterbehn points out that while the Ph. Germ. IV provides that volatile oil of mustard contain in addition to allyl-iso-thiocyanate also allylcyanide, the Ph. Fr. V specifically restricts this oil to allyl-iso-thiocyanate having a boiling point of 150° C. and a specific gravity of 1.017 at 10° C.—Apoth. Ztg., Berl., 1909, v. 24, p. 240.

Schimmel & Co. (Semi-Annual Report, April, 1909, p. 102), in discussing the Ph. Svec. IX requirements for mustard oil, assert that they have found pure oils having as low a specific gravity as 1.014.

La Wall, Charles H., thinks that the assay process for allyl-iso-thiocyanate in volatile oil of mustard requires so much time and attention as to discourage a busy man.—Proc. New Jersey Pharm. Ass., 1909, p. 104.

Ruhemann, Siegfried, reports observations on the action of mustard oils on the ethyl esters of malonic and cyanoacetic acids.—J. Chem. Soc., Lond., 1909, v. 95, pp. 117–122. See also Ruhemann and Priestley, *Ibid.*, pp. 449–456.

Carlier, E. Wace, discusses some aspects of the physiological action of allyl-iso-thiocyanate, and illustrates the article with a number of tracings.—Biochem. J., Liverpool, 1909, v. 4, pp. 107–116.

Tyrode, Maurice Vejux, reports observations on the general action of thiosinamin, a derivative of mustard oil.—Arch. internat. d. pharmacod. et d. therap., 1909, v. 19, pp. 195–213.

#### OLEUM TEREBINTHINÆ.

An editorial (Paint, Oil, and Drug Review, 1909, v. 48, July 7, p. 10) points out that the turpentine industry has largely migrated to Florida, where a larger source of supply has been found. At the present reckless rate at which the trees are being drawn upon, it will not be long before the magnificent forests of Florida will have been drained of their wealth of natural gums. A still newer source of supply is found in Texas, where immense areas of virgin forest still remain to be cut.

West, George N., reports that a small plant for distilling turpentine by electricity has been put in operation in Vancouver, and reviews the progress made.—Oil, Paint, and Drug Reporter, New York, 1909, v. 75, May 17, p. 10.

The German consulate in Atlanta and New York (Nachrichten f. Handel U. Industrie No. 55, p. 4, May 25, 1909; No. 70, p. 4, July 1, 1909) reports the total quantity of oil of turpentine produced in the United States between April, 1908, and May, 1909, as amounting to over 36.5 million gallons, and that of rosin of over 4 million barrels.—Semi-Ann. Rep. (Schimmel & Co.), October, 1909, p. 114.

A correspondent describes and illustrates the French system of turpentinizing, and points out that this method is much less wasteful than is the American system.—Oil, Paint, and Drug Reporter, New York, 1909, v. 75, May 3, p. 28 F.

Vèzes, M., in a discussion of the resin industry of the Landes, and its products, presents a number of illustrations of turpentine stills, and comments at some length on the characteristics of French oil of turpentine.—Sc. & Ind. Bull., Roure-Bertrand Fils, Grasse, April, 1909, pp. 3-24.

v. Soden, Hugo, thinks that oil of turpentine might be deleted from the Pharmacopœia and only the rectified oil retained.—Pharm. Ztg., Berl., 1909, v. 54, p. 251.

Umney, J. C., points out that in the programme for the White Cross Society Congress the specific gravity of oil of turpentine is stated to be from 0.850 to 0.870 at 15° C., the lower limit being too low. The U. S. P. and Ph. Germ. give 0.860 to 0.870, taken at a temperature of 25° in the case of the U. S. P.—Chem. & Drug., Lond., 1909, v. 75, p. 581.

Schamelhout, A., notes that in France the French oil is used exclusively; in Belgium the American oil may be employed under the same title.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 12.

A committee of the Syndicat général de la Droguerie française asks that oil of turpentine with a lower rotatory power than 40° be tolerated.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 288.

Poulenc Frères state that the samples they have examined, from different sources, always show a rotatory power lower than the 40° 32' required by the Ph. Fr. V. (—32° 9', 33° 8', 33° 4').—*Ibid.*, p. 409.

Schamelhout, A., commenting on the discussion of oil of turpentine (Semi-Ann. Rep., Schimmel & Co., April, 1909, p. 90) states that the assay with aniline should be made at 15° C.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 206.

Thurston, Azor, discusses the analysis of oil of turpentine, and outlines the requirements to which satisfactory turpentine should comply; he also presents a comprehensive bibliography of the subject.—Merck's Rep., 1909, v. 18, pp. 316-319.

Gane and Webster discuss turpentine and turpentine substitutes.—Pharm. J., Lond., 1909, v. 28 (82), p. 684. See also Drug Topica, New York, 1909, v. 24, pp. 36–37.

Wiley, H. W., reports that approximately 300 samples of “spirits of turpentine” have been examined in connection with the administration of the food and drugs act, June 30, 1906. It was found that but few samples collected from producers were adulterated, but about 20 per cent of the samples from the stock of primary buyers, and about 27 per cent of the samples from wholesale and retail dealers, were sophisticated.—Ann. Rep. U. S. Dept. Agric. for 1909, 1910, p. 443.

An unsigned article discusses turpentine and turpentine substitutes, and points out that the detection of these admixtures is difficult, but not impossible.—Am. Druggist, N. Y., v. 54, p. 163.

Geer, William C., discusses the analysis of turpentine by means of fractional steam distillation.—Chem. Ztg., Cöthen, 1909, v. 33, p. 859.

Marcusson, J., discusses the physical and chemical properties of oil of turpentine and turpentine substitutes.—*Ibid.*, pp. 966–967; 978–979; 985–987.

Herzfeld, H., points out that he had previously called attention to a number of the points made by Marcusson.—*Ibid.*, p. 1081.

Casanova, Carlo (Boll. chim. farm., 1909, 48, 684–685) reports observations on the action of iodine on turpentine oil, and the chemistry of the resulting additive product.—J. Chem. Soc., Lond., 1909, v. 96, p. 813.

Mansier discusses the assay of oil of turpentine by means of bromine and outlines the method of assay.—Répert. d. pharm., Par., 1909, v. 21, pp. 434–438.

Teeple, John E., reports observations on pine products from pine woods.—J. Ind. Eng. Chem., 1909, v. 1, pp. 597–600.

Veitch, F. P., concludes an article on the utilizing of waste wood and the recovery of turpentine and other products by destructive distillation.—Sc. Am. Suppl., 1909, v. 67, pp. 38–39.

An editorial (Oil, Paint, and Drug Reporter, New York, 1909, v. 76, Nov. 22, pp. 7–8) discusses the adulteration of oil of turpentine and asserts that the practice of adulterating turpentine is growing.

Paul, Arthur E., describes turpentine and discusses some of its adulterants.—J. Ind. Eng. Chem., 1909, v. 1, pp. 27–31.

Acott, R. H., reports that he has come across several samples of so-called turpentine which were contaminated by light naphtha, one of the adulterants mentioned by Paul in the preceding paper.—*Ibid.*, p. 117.

Paul, Arthur E., comments on the statement made by Acott, and says that the term “very light naphtha” and “exceedingly light petroleum products” were not intended to include ordinary gasoline,

but merely such unusual products as "hexane," petroleum ether, etc.—*Ibid.*, pp. 261–262.

Coste, J. H., presents a note on the determination of petroleum in turpentine.—*Analyst*, London, 1909, v. 34, pp. 148–151.

Marcusson and Winterfeld describe and illustrate an apparatus for the estimation of mineral oils in oil of turpentine.—*Chem. Ztg.*, Cöthen, 1909, v. 33, p. 987.

La Wall, Charles H., calls attention to the necessity for a time limit in connection with the test for hydrocarbon oils. If the mixture is allowed to stand over night to separate, as is frequently done, no oil will answer the requirements. The volume of undecomposed material remaining after one-half hour's standing should be taken as the index of the amount of foreign oil of this character.—*Proc. New Jersey Pharm. Ass.*, 1909, p. 104.

An editorial (*Paint, Oil, and Drug Review*, 1909, v. 47, March 3, p. 10) discusses the adulteration of oil of turpentine.

Thurston, Azor, reports on two samples of oil of turpentine examined. One was pure and the other contained 32 per cent petroleum product.—*Proc. Ohio Pharm. Ass.*, 1909, p. 65. Also *Midl. Drug.*, 1909, v. 43, p. 454.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 57) found only 1 consignment, out of 36, to contain petroleum. The figures obtained were: Specific gravity, 0.858 to 0.870; optical rotation,  $-3^{\circ}$  to  $+12^{\circ}$ ; commenced to distill at  $157.50^{\circ}$  to  $165^{\circ}$  C. The adulterated sample (Russian) had a specific gravity, 0.8537; optical rotation,  $+5^{\circ} 48'$ ; 80 per cent distilled between  $170^{\circ}$  and  $185^{\circ}$  C.; 98 per cent distilled below  $205^{\circ}$  C.; and contained at least 25 per cent of petroleum bodies.

Southall Bros. & Barclay (*Rep.*, 1908–9, Birmingham, 1910, p. 26) again found much variation in the rotation of turpentine oils examined, ranging from  $+0.74^{\circ}$  to  $+12.25^{\circ}$  in oils shown to be genuine by fractionation and other tests.

Sargeant, F. Pilkington, asserts that turpentine is an insectifuge, and is used for dressing sheep to keep off the maggot fly, and cattle to prevent the warble fly striking.—*Pharm. J.*, Lond., 1909, v. 29 (83), p. 237.

#### OLEUM TEREBINTHINÆ RECTIFICATUM.

v. Soden, Hugo, thinks that the directions for rectified oil of turpentine might be omitted, as it is seldom produced in the shop of the apothecary. Rectified oil of turpentine should have a clean turpentine-oil odor, and have a specific gravity of from 0.860 to 0.872, and boil at from  $155^{\circ}$  to  $162^{\circ}$ . It should be clearly soluble in from 5 to 8 parts of 90 per cent alcohol.—*Pharm. Ztg.*, Berl., 1909, v. 54, p. 251.

Earp (N. York M. J.) asserts that if turpentine is not used in gelatin capsules, an emulsion flavored with wintergreen comes next in order for palatability.—Meyer Bros. Drug., St. Louis, 1909, v. 30, p. 117.

#### OLEUM THEOBROMATIS.

Sage, C. Edward, in discussing theobroma oil, points out that the minute proportion of the total production of this oil which is used in pharmacy gives no adequate idea of its commercial importance. He reviews the history of cacao products, discusses the several varieties of the plant, comments on the pharmacopœial tests for the oil, and presents a table showing the analytical factors of oil of theobroma, cocoa nut stearin, and cocoa nut oil.—Pharm. J., Lond., 1909, v. 29 (83), pp. 763–765.

Cowie and Brander present a note on cacao butter and cacao butter substitutes examined by them.—Year-Book of Pharmacy, Lond., 1909, pp. 321–323. See also Pharm. J., Lond., 1909, v. 29 (83), pp. 158–159.

Halphen, G., presents some observations on the analysis of cacao butter.—Ann. d. chim. analyt., Par., 1909, v. 14, pp. 254–256. See also Ann. d. Falsif., 1909, v. 2, p. 39–41.

The Belgian inspectors of pharmacies report that they found cacao butter rancid, also not having the requisite solubility in ether.—J. d. pharm. d'Anvers, 1909, v. 65, p. 549.

Clessler reports a sample of cacao oil which had correct melting point and iodine number, but which was nevertheless adulterated.—Suedd. Apoth. Ztg., 1909, v. 49, p. 59.

Southall Bros. & Barclay (Rep., 1908–9, Birmingham, 1910, p. 18) have examined 14 samples of theobroma oil, all but 1 of which gave normal results; the one exception was objected to on account of the low iodine figure, 32.1 per cent. In the remainder the results obtained were as follows: Saponification value, 192.5 to 196.9; iodine absorbed, 34.2 to 38.7 per cent.

#### OLEUM THYMI.

Dupont, Justin, reports the following definition of oil of thyme as having been adopted by the Second International Congress for the Suppression of Adulterations: Oil of thyme is obtained by the distillation of the flowering herb of *Thymus vulgaris* L. Characters: Brownish-red oil; density at 15° C., 0.900 to 0.950; solubility, 1 part dissolves in 2 parts of 80 per cent alcohol; phenol-content, 18 to 65 per cent.—Sc. & Ind. Bull. Roure-Bertrand Fils, Grasse, October, 1909, p. 16.

Umney, J. C., in commenting on the above, points out that a very wide range of specific gravity is given—0.900 to 0.950. The phenol content, however, is stated as being 18 to 65 per cent. The higher

specific gravity would give a very much higher percentage than 25 of thymol and carvacrol. The range, in his opinion, should be from 0.900 to 0.930, and the percentage of phenols not less than 25.—*Chem. & Drug.*, Lond., 1909, v. 75, p. 581.

v. Soden, Hugo, points out that the commercial oils of thyme vary considerably in their phenol content, the French containing from 20 to 30 per cent, while some Spanish oils contain as much as 60 to 80 per cent. In view of this wide variation he thinks the nature of the oil should be specified.—*Pharm. Ztg.*, Berl., 1909, v. 54, p. 251.

Roure-Bertrand Fils (*Sc. & Ind. Bull. Grasse*, April, 1909, p. 63) in a review of the essential oil industry of Spain point out that thyme grows plentifully at altitudes of 700 to 900 meters, along the whole southern slope of the chain of hills which bounds the Iberian peninsula on the Mediterranean side. The most of the essential oil is produced in the neighborhood of Medina and Malaga.

Schamelhout, A., states that the French oil of thyme is the natural product; in Belgium this is replaced by thymol, a product also included in the *Ph. Fr. V.*—*Bull. Soc. roy. d. pharm.*, Brux., 1909, v. 53, p. 12.

Umney, J. C., comments on the relation of oil of thyme and oil of origanum, and points out that it would indeed be interesting if the oil which originally found a place in pharmacy, under a misnomer, as oil of origanum, should be at no distant date chiefly derived from a species of origanum.—*Chem. & Drug.*, Lond., 1909, v. 75, p. 452.

Patch, E. L., reports oil of thyme colorless, good odor, soluble in 10 volumes of 80 per cent alcohol, rotation,  $-1.4^{\circ}$ ; phenols, 20 per cent.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 737.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 56) report on eight consignments of French red thyme oil: Specific gravity, 0.909 to 0.918; phenols, 29 to 37 per cent. The one adulterated sample found had a specific gravity of 0.876 and phenols 3 per cent. The pale oils afforded specific gravity, 0.890 to 0.908; phenols, 20 to 34 per cent.

Southall Bros. & Barclay (*Rep.*, 1908-9, Birmingham, 1910, p. 25) report that one only of the three samples of white oil of thyme examined gave thoroughly satisfactory results: Specific gravity, 0.894 to 0.924; phenols, 10.2 to 56.3 per cent; rotation,  $-1.15^{\circ}$  to  $+2.05^{\circ}$ .

#### OLEUM TIGLII.

Sage, C. Edward, discusses the chemical and therapeutic properties of croton oil, and points out that while this oil has been the subject of many chemical investigations, its chemistry is as yet not thoroughly developed, and the buyer must rely on the appearance



of the drug and the integrity of the pressers.—Pharm. J., Lond., 1909, v. 29 (83), p. 767.

Holmes, E. M., in discussing the materia medica of Perak, points out that the smooth fruits of *Croton tiglium* Linn., are simply labeled "Croton oil seeds, a powerful purgative." No vernacular name is attached to them.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 754.

Schamelhout, A., notes that in France croton oil is obtained by exhausting with alcohol and rectified ether (alcohol 90 per cent, 300 gm.; ether 700 gm.) the seeds of *C. tiglium* ground with their integument. In Belgium this oil should come from the decorticated seeds and may be obtained either by expression or extraction.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 55.

Paal and Roth report observations on the catalytic action of the colloidal metals of the platinum group on croton oil.—Ber. d. deutsch. chem. Gesellschaft., Berl., 1909, v. 42, pp. 1544–1546.

Gray, Robert, has found croton oil tablets dissolved in hot milk the finest, quickly effective purge that he has ever known, putting all salines and castor oil to shame.—J. Therap. & Diet., 1909–10, v. 4, p. 203.

#### OPIMUM.

Thoms, H., reports experiments in the cultivation of poppy and the production of opium in Germany.—Arb. a. d. pharm. Inst. d. Univ. Berl. (1909), 1910, v. 7, pp. 69–70.

Ozmun, Edward H., consul general at Constantinople, presents a comprehensive report on the cultivation of poppy and exports of opium in European Turkey.—Oil, Paint, and Drug Reporter, New York, 1909, v. 75, Jan. 25, pp. 38–39.

An abstract (Chem. Ztg.) outlines the methods followed in Persia in the production of opium.—Drug Topics, New York, 1909, v. 24, p. 19.

Schneider, Albert, points out that the opium poppy thrives exceedingly well in California. It should be grown directly from the seed, as it can not be transplanted with success.—Pacific Pharmacist, 1909–10, v. 3, p. 193.

Rusby, H. H., points out that the firm insistence that opium meet the U. S. P. requirements has brought about a remarkable improvement in the general character of this drug during recent years.—Midl. Drug., 1909, v. 43, p. 691. See also Pharm. Era, 1909, v. 42, p. 634.

At the Second International Congress for the Suppression of Adulterations (Paris, 1909) there was proposed as the definition of opium: Opium is the thickened latex obtained by incision of the still green capsules of *Papaver somniferum* L. (*Papaveraceæ*), and its characters given.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 356.

Schamelhout, A., states that, according to the definition as finally approved, opium which has been dried at 60° should contain not more than 10 per cent of water and at least 10 per cent of morphine. In the same conditions it should, moreover, furnish at least 45 per cent of aqueous extract, say, 38 per cent dry extract, which should contain all of the morphine. The same opium dried at 60° should yield not more than 6 per cent of ash.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 338.

Denigès, Georges, reports observations on the glyoxalic reaction of the alkaloids of opium.—Proc. VIIth Internat. Congress App. Chem., Sec. VIIIb, Pharmacy, 1909, London, 1910, pp. 65–68. See also Pharm. J., Lond., 1909, v. 28 (82), p. 770.

Caesar & Loretz (Geschäfts-Ber., 1909, pp. 94–95) present Dietrich's abbreviated method for the assay of morphine in opium and compare the requirements for morphine and ash made in eight of the recent pharmacopœias.

Carlson, C. E., discusses the Ph. Svec. assay for morphine in opium.—Svensk. farm. Tidskr., 1909, v. 13, pp. 165–169. See also Pharm. Zentralh., 1909, v. 50, pp. 721–725.

Kottenhoff, G., criticises the assay of opium alkaloids in the Ph. Belg. III. He thinks the employment of acetic ether is not to be recommended, and the titration with N/10 soda and iodeosin open to objection. By weighing and the use of sulphuric ether as recommended by the Ph. Helv., he obtains much better results.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 133.

Frerichs, H., discusses the estimation of morphine in opium, opium extract, and tincture of opium, and outlines a modified method; he also describes and illustrates a modified separatory funnel designed to facilitate the decanting of the acetic ether.—Apoth. Ztg., Berl., 1909, v. 24, pp. 592–596.

Fromme, G., comments on a paper by H. Frerichs and expresses himself as not being in favor of the elimination of gravimetric methods in alkaloidal assay.—Geschäfts-Ber. v. Caesar & Loretz, 1909, pp. 36–40.

Arkin, James A., outlines a new method for the determination of morphine in opium, which he believes obviates the tedious weighing and purification of the impure morphine first thrown down, and the subsequent weighing of the insoluble matter.—Pacific Pharmacist, 1909–10, v. 3, pp. 39–41.

Marris, G. W., in discussing the Ph. Japon. III, points out that in the assay of opium, the weighing of the dry crystals is certainly a good check on the final result.—Chem. & Drug., Lond., 1909, v. 74, p. 380.

Lyons, A. B., recommends that the official assay method for opium be modified, so as to make it practically Squibb's method.—Proc.

Am. Pharm. Ass., 1909, v. 57, p. 809. See also Am. Druggist, New York, 1909, v. 55, p. 339.

Diekman, G. C., in discussing the U. S. P. assay of opium, deplors the lack of definiteness in the official directions for extracting the sample, and the fact that there is no test given for determining when the sample is exhausted.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 486.

Dohme and Engelhardt review some of the comments that have been made on assay methods for opium, and point out that there is no doubt that the U. S. P. method gives rather concordant although high results. One disadvantage of the method is that it takes very much time to carry out.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 884–885.

Lyons, A. B., in a review of progress in standardization of pharmacopœial drugs, points out that in the assay of opium, pharmacopœias are still divided between the lime processes, which yield morphine in a reasonably pure form, and the direct precipitation of the morphine from a concentrated aqueous solution with ammonia. He thinks the latter process in its latest form is nearly or quite as short as the former, and yields somewhat higher results.—Proc. VIIth Internat. Congress App. Chem., Sec. VIIIb, Pharmacy, 1909, London, 1910, p. 108.

Moerk, Frank X., discussing the alkaloidal assay of opium, points out that by changing the weight of the opium extract [in course of preparation] to 20 gm. (from 12 gm.), and of the opium extract [in the directions for assay] to 6 gm. (from 4 gm.) a uniform method for all opium preparations will result.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 925.

Lehn & Fink (Annual Report for 1909, pp. 30–39) point out that the official process for the assay of opium does not yield all of the morphine in the opium. Methods are outlined for the assay of the moist gum, dried gum, tincture, extract, and fluid extract.

Pape, Karl, presents a comparative study of the assay of morphine in opium and in opium preparations as given in the several pharmacopœias published since 1900. A comprehensive review of the literature relating to the assay of opium is also included.—Apoth. Ztg., Berl., 1909, v. 24, pp. 70–73, 81–82, 88–90, 99–101.

van Itallie and Kerbosch report assays of a number of different varieties of opium to determine the occurrence of the several opium alkaloids. Of 19 samples examined narcotine, narceine, thebaine, codeine, and morphine were found in all, while papaverine was found in all but 4.—Arch. d. Pharm., Berl., 1909, v. 248, pp. 609–613.

Kline, C. M., reports a glaring case of adulteration of gum opium, a cake containing a large ball of clay in the interior.—Proc. N. W. D. A., 1909, p. 131.

Dohme and Engelhardt report receiving several shipments of opium barely assaying 9 per cent morphine, in one case the morphine present amounted to 8.12 per cent. The results were checked by calculating the morphine from the galenical preparations prepared from the respective shipments.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 717.

Vanderkleed, C. E., reports 10 assays of opium gum, lowest 10.09, highest 14.9, per cent morphine; all above standard.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 129.

Bachman, Gustave, reports that in the opium examined he found 9.8 per cent minimum and 12 per cent maximum.—*Proc. Minnesota Pharm. Ass.*, 1909, p. 71.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 42) report finding from 10 to 13.35 per cent in 10 samples of opium undried.

Southall Bros. & Barclay (*Rep.* 1908-9, Birmingham, 1910, p. 16) report that six samples of Turkish opium have given proportions of morphine (*Ph. Brit. process*) ranging from 12.6 to 17.4 per cent of the dry opium, and averaging 14.5. Moisture has varied between 20.3 and 26.7 per cent, averaging 23.7.

Clessler reports six samples of powdered opium which yielded from 8.11 to 12.04 per cent morphine, he thinks the method gives low results.—*Suedd. Apoth. Ztg.*, 1909, v. 49, p. 59.

Vanderkleed, C. E., reports nine assays of opium powdered, lowest 10.18, highest 16.4 per cent morphine; six above and three below standard.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 129.

van de Kreke and Swart report a comprehensive study on the extent to which the several opium alkaloids appear in pharmaceutical preparations of opium, and state that morphine is dissolved completely both by aqueous as well as alcoholic menstrua, while codeine and narcotine are only dissolved partially by aqueous menstrua, but are completely dissolved by the alcoholic solvents.—*Pharm. Weekbl.*, 1909, v. 46, pp. 1338-1342.

Capps, Pratt, McCrae, and Halsey recommend the deletion of acetum opii from the U. S. P.—*J. Am. M. Ass.*, 1909, v. 53, p. 792.

Fussell, M. H., in recommending that vinegar of opium be deleted from the Pharmacopeia, points out that it is certainly little used and not as valuable as the deodorized tincture of opium.—*Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, p. 203.

Gane and Webster point out that vinegar of opium is practically obsolete and should be omitted from the U. S. P. Any advantages it possesses over the tincture should be retained by a more up-to-date preparation.—*Drug Topics*, New York, 1909, v. 24, p. 325.

Mittelbach, William, thinks that the formula for opium plaster is very good.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 816.

Candussio, G., discusses the sterilization of extract of opium, by means of a process and apparatus which he claims may be utilized for other products.—*Boll. chim. farm.*, Milan, 1909, v. 48, pp. 9-11.

Clessler reports 5 samples of extract which yielded, respectively, 16.61, 17.10, 18.24, 21.09, and 25.08 per cent.—*Suedd. Apoth. Ztg.*, 1909, v. 49, p. 59.

The Belgian inspectors of pharmacies report extract of opium poorly kept. It absorbs moisture and becomes pasty. The strength does not always respond to pharmacopœial requirements. They meet with extracts containing only a portion of the desired morphine content.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 628.

Schamelhout, A., reports that the analytical laboratory examined four extracts of opium of which two were satisfactory. The other two only showed 9.8 and 16.3 per cent of morphine.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 272.

Cook, E. Fullerton, reports that tincture of opium U. S. P. is satisfactory, although the propriety of introducing the alternative of preparing it from "gum opium" and afterwards assaying it should be considered.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1003.

Schamelhout, A., notes that the French tincture of opium is prepared by dissolving the extract in alcohol, while the Belgium preparation is made by percolation; both contain 1 per cent of morphine.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 83.

Möller, Hans Jakob, discusses the percolation of opium in making of tincture of opium according to directions laid down by the Brussels Conference Protocol. He points out that the *Ph. Dan. VII* (1907) is the only one of the recent pharmacopœias which adheres strictly to the Protocol directions and outlines a method for the percolation of opium, using sand as the diluent.—*Ber. d. Pharm. Gesellsch., Berl.*, 1909, v. 19, pp. 240-243.

An editorial (*Pharm. J., Lond.*, 1909, v. 28 (83), p. 2) calls attention to the paper by H. J. Möller, Copenhagen, on the percolation of opium in the making of tincture of opium, and points out that but two pharmacopœias—the Danish, 1907, and Swedish, 1908—have adopted a satisfactory method for making tincture of opium by percolation.

An unsigned article calls attention to percolation methods for the preparation of tincture of opium and Sydenham's laudanum as proposed by Hans J. Möller for the *Ph. Dan.*—*Suedd. Apoth. Ztg.*, 1909, v. 49, p. 523.

Clessler reports 11 samples of simple tincture and Sydenham's tincture which gave from 0.520 to 1.11 per cent. He hopes a better method will be adopted and suggests that these tinctures be made from an assayed powder.—*Ibid.*, p. 59.

*Table showing some of the analytical results reported in connection with tincture of opium.*

| Reporters.               | Number of samples— |           | References.                                    |
|--------------------------|--------------------|-----------|--|
|                          | Examined.          | Rejected. |  |
| Diekman, George C.....   | 121                | 19        | Rep. New York Bd. Pharm. (1909), 1910, p. 15.  |
| Dunlap, Renick W.....    | 11                 | 5         | Rep. Ohio Dairy & Food Com., 1909, p. 60.      |
| Thurston, Asor.....      | 8                  | 6         | Midl. Drug., 1909, v. 43, p. 454.              |
| Fitz-Randolph, R. B..... | 25                 | 15        | Rep. New Jersey Bd. Health (1909) 1910, p. 190 |

Dunn, John A., recommends the use of ether in making deodorized tincture of opium, in preference to the purified petroleum benzin of the U. S. P. VIII.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 950.

Schamelhout, A., calls attention to the French formula for Sydenham's laudanum and the fact that, while the morphine content is the same as that of the Belgian, the latter is made with 70 per cent alcohol and contains only 15 gm. of saffron.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 56.

Cook, E. Fullerton, reports that the formula for camphorated tincture of opium is entirely satisfactory.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1003.

Schamelhout, A., notes that the French and Belgian elixirs of paregoric contain the same quantities of morphine and of benzoic acid; in Belgium the elixir is prepared with 70 per cent alcohol and contains 0.3 per cent of camphor and 0.2 per cent of anethol; in France 60 per cent alcohol, 0.2 per cent camphor, and 0.5 per cent anise oil.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 10.

Hill, Edward C., reports three samples of paregoric examined, one of which was not up to standard.—Bull. Colorado Bd. Health, 1909, v. 9, No. 1, p. 2.

Dunlap, Renick W., reports four samples of paregoric examined, two not passed.—Rep. Ohio Dairy & Food Com., 1909, p. 60.

The examination of drug samples in 1907 showed that of 50 samples of paregoric examined, five were found adulterated or not up to standard.—Pharm. J., Lond., 1909, v. 29 (82), p. 182.

Stange discusses the production and widespread use of opium. He also refers to the abuse of opium and asserts that, up to the beginning of the eighteenth century, this article was used exclusively as a drug, and that its abuse is to be attributed to English traders.—Tropenpflanzer, Berlin, 1909, v. 13, pp. 208-214.

Schultze, Ernst, discusses the opium menace in France and in North America.—Hyg. Rundschau, 1909, v. 19, pp. 1053-1062.

Ishikawa, S., in a discussion of the widespread use of opium among the Chinese, asserts that from time immemorial it has been the practice in China to use opium, without consulting a physician, for

counteracting the effects of pain, regardless of its origin or cause.—J. Pharm. Soc. Japan, June, 1909.

The same author reports examining 47 samples of antiopium pills, 40, or 85 per cent, of which were found to contain morphine.—*Ibid.*, p. 895.

Rochester, A. S., discusses the care and treatment of opium smokers in the Philippines. He thoroughly condemns the use of hyoscine as a substitute for morphine in treating this class of patients.—J. Am. M. Ass., 1909, v. 52, pp. 351–353.

An abstract from a report on the opium question in China points out that much is being attempted at the present time in the antiopium crusade. As regards antiopium medicines, their number is legion, and many of them contain opium or morphine in varying quantities. An English missionary reports extensive experiments with *Combretum sundaicum* with satisfactory results.—Chem. & Drug., Lond., 1909, v. 75, p. 344.

Wright, Hamilton, discusses the work of the international opium commission and presents some statistics on the amount of opium smoked in the United States.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 637–645.

An editorial (Lancet, 1909, v. 177, p. 1510) calls attention to the report (*Ibid.*, p. 1618) of the international opium commission.

An editorial (Western Druggist, Chicago, 1909, v. 31, p. 6) in discussing the Shanghai conference on the opium traffic and its international regulation, points out that the United States imports about 650,000 pounds of opium every year, although 100,000 pounds, according to some authorities, would cover the demands for medicinal use.

An editorial (Meyer Bros. Drug., St. Louis, 1909, v. 30, p. 132) comments on the illegitimate use of opium and the efforts made by the great nations of the world to curtail the traffic and to prevent new victims of the drug habit.

Schneider, Albert, asserts that the principal habit-forming drugs on the Pacific coast are opium and opium derivatives, chloral hydrate, bromides, coal-tar sedatives, and cocaine.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 743.

An article reprinted from the New York Times calls attention to the desirability of curtailing the world's opium traffic, and presents statistics showing the increased consumption of this drug.—Drug. Circ., N. Y., 1909, v. 53, pp. 575–576.

An editorial (*Ibid.*, p. 216) comments on the new restrictions on opium, and calls attention to the text of the act which prohibits the importation of opium into this country for other than medicinal purposes, and provides for a closer Government surveillance of its importation for such purposes.

An editorial (Pharm. J., Lond., 1909, v. 28 (82), p. 354) comments on the treatment of the opium habit, and calls attention to some of the many plans that have been recommended from time to time for use in this connection.

Mott, J. V., discusses the treatment of the opium habit by the general practitioner. He advises against the too rapid withdrawal of the drug, as this treatment is cruel, not to say inhuman, and will cause the patient to procure the drug elsewhere.—Eclectic M. J., Cincin., 1909, v. 69, pp. 146-147.

An editorial (J. Therap. & Diet., 1909-10, v. 4, p. 3) points out that opium and its alkaloids are often followed by unexpected effects, which are supposed to be due to variations in the character of the disease, the age, sex, and race of the patient, the climate in which he lives, and many other considerations. Temperament and idiosyncrasy are important factors in determining these results. Women are much more susceptible than men, and persons of a nervous and excitable temperament show these effects more often than those of the opposite type.

Hale, Worth, in a report of an experimental study on the influence of certain drugs upon the toxicity of acetanilide and antipyrine, discusses the action of opium alkaloids on the toxicity of these drugs.—Bull. Hyg. Lab. U. S. P. H. & M.-H. S., 1909, No. 53.

Müller, George Hermann (Diss., Leipz., 1908, p. 103) reports observations on the toxic action of several opium alkaloids on cats.—Jahres. ü. Tier-Chem., 1909, Wiesb., 1910, v. 39, p. 1200.

Smith, Eustace, makes a contribution on some uses of opium.—Brit. M. J., 1909, v. 2, pp. 1606-1608.

Dixon, W. E., says that many drugs have been credited with some virtue, which has been copied from book to book until the origin of its supposed action is lost. Opium was supposed to have value as a local anæsthetic, and the Pharmacopœia contains a plaster, a liniment, and the ointment of galls and opium, all apparently for the purpose of a local effect, but opium and its alkaloids have no local anæsthetic action. Opium is further contraindicated in cardiac and renal diseases, although it has no action on either the heart or kidneys; it is excreted by the alimentary canal and induces constipation, and this may afford some reason against its employment in renal disease.—*Ibid.*, p. 539.

An editorial (Therap. Gaz., 1909, v. 33, p. 866), commenting on the article by Dixon, expresses the belief that the experience of the busy practitioner will lead him to take issue with the pharmacologist in some of the statements made by Dixon.

Wilks, Samuel, in a comparison of the drug with its alkaloids, expresses the belief that in a great many cases opium is a much more valuable remedy than its chief constituent, morphine, in that mor-



phine can not be substituted for it.—*Folia Therap.*, Lond., 1909, v. 3, p. 99.

Additional references on the use of opium and its derivatives will be found in *Index Medicus* and *J. Am. M. Ass.*

#### PANCREATINUM.

Choay discusses the action of heat on the extracts obtained in drying pork pancreas in cold and in vacuum.—*J. d. pharm. et d. chim.*, Par., 1909, v. 30, p. 569.

Bernegau, L. H., reports on several samples of pancreatin which tested only from 1 to 18 and 1 to 20 in amylolytic power.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 126.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 43) found three samples of pancreatin to comply with the requirements of the B. P. Codex as regards amylolytic strength, but deficient in proteolytic properties. They give a method for applying the latter test.

Sacks, Bernard, discusses the chemistry and uses of pancreatin.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 1122–1131.

Loeb, Jacques, presents some observations on the electrolytical dissociation and physiological action of pepsin and trypsin.—*Biochem. Ztschr.*, Berl., 1909, v. 19, pp. 534–538.

An editorial (*Lancet*, 1909, v. 176, p. 415), calls attention to the work of Vanderkleed and Bernegau (*Drug. Circ. N. Y.*, January, 1909, p. 16) [see *Bulletin* 75], on the retarding influence of sodium bicarbonate on pancreatin. The note closes with the statement that before the suggestion to reduce the amount of sodium bicarbonate is adopted it would be desirable to ascertain whether the excess of alkali may not serve a useful part in neutralizing the acid contents of the stomach.

Kudo, T., discusses the influence of acids, alkalis, neutral salts, and carbohydrates on trypsin. He concludes, in part, that both acids and alkalis inhibit the action of trypsin and that organic acids are even more active in this respect than are inorganic acids.—*Biochem. Ztschr.*, 1909, v. 15, pp. 473–500.

An editorial (*Therap. Gaz.*, 1909, v. 33, p. 868) discussing the interaction of digestive ferments, points out that although from a scientific point of view it may be true that the activity of one ferment is destructive to another, it is quite possible that in practical medicine conditions may exist which would at least justify their combination, the more so as, so far as we know, there is no evidence whatever to indicate that the results of the destruction of one of these ferments are in any way deleterious in their influence. The destroyed ferment is wiped out of existence at the worst and no effect is produced for good or ill.

Stockton, Charles G., discusses the use of digestive ferments in medicine, and concludes that on the whole the question of administration of digestive ferments is complicated and is rendered the more uncertain by lack of precise knowledge as to what becomes of them in the digestive canal. In our present state of knowledge, or rather lack of knowledge, it behooves us to be modest in claiming either good effects or no effects from the administration of these ferments.—Tr. Am. M. Ass., Sec. Pharm. and Therap., 1909, p. 45.

Additional references on the chemistry, pharmacology, and use of pancreatin will be found in Index Medicus and J. Am. M. Ass.

### PARAFFINUM.

Kline, C. M., reports a sample of paraffin which was clear instead of cloudy at 0° C. A solution of the oil in chloroform was cloudy not clear.—Proc. N. W. D. A., 1909, p. 135.

Burckhardt (Fortschr. d. Med., 1909, v. 27, No. 8) thinks that the anatomic conditions offer peculiar advantages for the use of paraffin in the treatment of umbilical hernias. The abstract gives details of his method.—J. Am. M. Ass., 1909, v. 52, p. 1551.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, p. 279) quotes Rhode (Med. Klinik, 1909, No. 48, p. 1820) who by mixing various sorts of paraffin has prepared a paraffin ointment melting at about 40° C. If this be introduced into the bowel after being melted by warmth, it solidifies, forming a coating upon the intestinal mucous membrane, and thus diminishing its power of absorption.

For additional references on the chemistry and use of paraffin see Chem. Abstr. Am. Chem. Soc., and Index Medicus.

### PAIREIRA.

Capps, Pratt, McCrae, and Halsey, recommend the deletion of pareira and fluidextractum pareiræ from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

Fussell, M. H., in recommending its deletion from the Pharmacopœia, asserts that pareira is one of those drugs which is impressed on his brain from student days. He doubts if it is ever used.—Tr. Am. M. Ass., Sec. Pharm. and Therap., 1909, p. 204.

### PASTÆ DERMATOLOGICÆ N. F.

Diehl, C. L., reports from the committee on N. F. recommending the deletion of all after "Dermatologic pastes" and before "Pasta Dextrinata."—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1081.

Posey, H. G., has had the same trouble with Lassar's zinc paste as have other writers (Raubenheimer, Bull. Am. Pharm. Ass., November, 1907, p. 349) and suggests the advisability of replacing the

white petrolatum with yellow, as it is customary in all European countries to use yellow petrolatum as a base for this preparation.—*Ibid.*, p. 992.

#### PELLETIERINÆ TANNAS.

Smith, Otis W., reports that he found pelletierine tannate in one place only, in Sedalia.—*Proc. Missouri Pharm. Ass.*, 1909, p. 113.

#### PEPSINUM.

Mossler, Gustav, in a general review of the occurrence and uses of the several ferments, outlines the method of making pepsin and discusses some of the various preparations of pepsin now available.—*Ztschr. d. allg. österr. Apoth.-Ver.*, Wien, 1909, v. 47, p. 106.

van Dam, W., discusses the question of the identity of pepsin and chymosin.—*Ztschr. f. physiol. Chem.*, 1909, v. 64, pp. 316–336.

Herzog, R. O., discusses the relation between pepsin and rennin.—*Ibid.*, 1909, v. 60, pp. 306–310.

Sacks, Bernard, discusses the chemistry and uses of pepsin.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1122–1131.

Schamelhout, A., calls attention to the different modes of assay of pepsin in the Ph. Fr. V and the Ph. Belg. III. Under specified conditions 0.10 gm. of the French pepsin should completely convert into peptone 2.5 gm. of desiccated fibrin. The Ph. Fr. mentions also a pepsin with starch and a lactated pepsin which should convert 10 times their weights of dried fibrin.—*Bull. Soc. roy. d. pharm. Brux.*, 1909, v. 53, p. 71.

[N. B.—Belgian pepsin is assayed with egg albumin.—Ed.]

Roberts, John G., thinks that the assay of pepsin is facilitated by passing the egg albumin through a sieve while hot.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 81. See also *Am. J. Pharm.*, Phila., 1909, v. 81, p. 121.

Pearson, W. A., found one lot of pepsin which was not normally soluble.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 180.

The committee on adulteration reports that a sample of scale pepsin was found to be deteriorated and without value.—*Proc. Maryland Pharm. Ass.*, 1909, p. 74.

Sayre and Zieffe report six samples of pepsin examined, four of which were found to be below standard.—*Bull. Kansas Bd. Health*, 1909, v. 5, D. A. 16–23.

Posey, H. G., asserts that aromatic pepsin N. F. should be dropped, as it is of too little value to find a place in the National Formulary.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 992.

Hill, Edward C., reports four samples of essence of pepsin examined, two of which were not up to standard.—*Bull. Colorado Bd. Health*, 1909, v. 9, No. 1, p. 2.

Whitney, (Mrs.) D. V., reports that a sample of essence of pepsin N. F., made by using scale pepsin 1:2600, after four months remained clear in appearance and had a pepsin content of 1:2365.5, when tested by the U. S. P. process.—Proc. Missouri Pharm. Ass., 1909, p. 103.

Sayre and Zieffle report one sample of elixir of pepsin examined which was below standard.—Bull. Kansas Bd. Health, 1909, v. 5, D. A. 16-23.

Desesquelle, Ed., criticizes the Ph. Fr. V elixir of pepsin, which, he says, is in reality a medicinal wine.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 660.

Pearson, W. A., reports a study of the elixir of lactated pepsin, and asserts that the commercial article varies greatly in composition and that the alcohol content varied from 7.2 to 17 per cent. From digestion tests made by him he wonders that clinicians obtain such uniformly good results with its use. He further points out that the term "lactated pepsin" should be defined, and some method devised to value the amylolytic ferments that may be present.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 905-907.

Beringer, George M., discusses the compound powder of pepsin N. F. and the compound elixir of pepsin and proposes formulas which he believes would make these preparations correspond more clearly to the title given them.—Am. J. Pharm., Phila., 1909, v. 81, pp. 331-336. See also, Midl. Drug., 1909, v. 43, pp. 256-258.

McElhenie, Thos. D., suggests that in making glycerite of pepsin N. F., scale pepsin be used and that the acidulated aqueous solution be made up to 200 cc., the glycerin being added subsequently.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 971.

Posey, H. G., asserts that the use of scale pepsin and the omission of alcohol tends to improve wine of pepsin. Detannating the wine is also a still greater improvement.—*Ibid.*, p. 997.

An editorial discusses the interaction of digestive ferments, and calls attention to the widely varying influences that have been experienced regarding the activity of combinations of these ferments, and comments on some of the recent work that has been done in connection with them.—Therap. Gaz., 1909, v. 33, pp. 867-886.

Loeb, Jacques, presents some observations on the electrolytical dissociation and physiological action of pepsin and trypsin.—Biochem. Ztschr., Berl., 1909, v. 19, pp. 534-538.

Hata, S., discusses the inhibition of ferment action of pepsin by corrosive sublimate and the possible reactivation of the ferment by suitable precipitants.—*Ibid.*, 1909, v. 17, pp. 156-187.

Stockton, Charles G., discusses the use of digestive ferments in medicine, and points out that while physicians occasionally find patients who insist that they feel greatly improved from taking

pepsin, this does not necessarily depend on any marked improvement in gastric digestion.—Tr. Am. M. Ass., Sec. Pharm. and Therap., 1909, p. 44. Also J. Am. M. Ass., 1909, v. 53, p. 1703.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 280–281) quotes Carnot, who asserts that pepsin is frequently wrongly prescribed, and consequently does not always fulfill all that it is capable of. He draws attention to the various points to be considered in the use of pepsin.

For additional references on the chemistry, pharmacology, and uses of pepsin see Chem. Abstr. Am. Chem. Soc., Index Medicus, and J. Am. M. Ass.

### **PETROLATUM.**

Holde, D., presents a review, with illustrations, of the petroleum industry of Roumania and Galicia.—Ber. d. pharm. Gesellsch., Berl., 1909, v. 19, pp. 512–528.

Gurwitsch, L., presents a review of the literature relating to the chemistry and technology of petroleum products.—Ztschr. f. ang. Chem., 1909, v. 22, pp. 1061–1070.

Annibale, Ferraro, presents a note on the determination of fatty substance of commercial vaseline.—Boll. chim. farm. Milan, 1909, v. 48, pp. 439.

An editorial comments on a recent effort to introduce petrolatum in place of lard for culinary purposes.—Drug Topics, New York, 1909, v. 24, p. 178.

Harbert, J. P., asserts that vaseline which has been rendered sterile is useful in burns and in abrasions of the cornea by affording a protective covering to inflamed surfaces.—Eclectic M. J., Cincin., 1909, v. 69, p. 530.

### **PETROLATUM ALBUM.**

Pearson, W. A., reports that it seems impossible to obtain white petrolatum with a higher melting point than 38° C.—Proc. Pennsylvania Pharm. Ass., 1909, p. 181.

### **PETROLATUM LIQUIDUM.**

Gane and Webster discuss the test recommended by C. Arragon to distinguish American petroleum from Russian or Austrian products. They point out that the test works well with ordinary kerosene, but is useless when applied to the heavier oils.—Drug Topics, New York, 1909, v. 24, p. 37.

### **PETROLATUM SAPONATUM N. F.**

Posey, H. G., asserts that liquid saponated petroleum is an excellent preparation, as is also its congener, Petrolatum Saponatum Spissum,

but formulas should also be appended for an iodine preparation (liquid) containing 10 per cent, and a mercury preparation (hard) containing 50 per cent.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 992.

Diehl, C. L., reports from the committee on N. F. recommending the omission of the synonyms "liquid petrox" and "solid petrox."—*Ibid.*, p. 1081.

Wilbert, M. I., asserts that he would be in favor of omitting the synonym "petrox" if the intention is to get rid of it because of its being a meaningless or misleading contraction.—*Ibid.*, p. 1081.

Plenge, Henry, reports having had very poor success with the National Formulary formula for liquid petrox, using an oleic acid, marked U. S. P. and made by a reliable manufacturer. However, an oleic acid marked "free from stearic and palmitic acids" yielded a perfectly satisfactory preparation.—*N. A. R. D. Notes*, 1909, v. 9, p. 472.

Waters, Henry, presents a formula for liquid petroliniment made by simply mixing—

|                                   |            |   |
|-----------------------------------|------------|---|
| White liquid paraffin.....        | parts..... | 6 |
| Oleic acid purified.....          | do.....    | 3 |
| Alcoholic ammon.....              | do.....    | 1 |
| Alcoholic ammon. consists of—     |            |   |
| Ammon, solution, 30 per cent..... | do.....    | 1 |
| Alcohol, 90 per cent.....         | do.....    | 2 |

—*Canad. Pharm. J.*, Toronto, 1909-10, v. 43, p. 87.

## PHENOL.

Umney, J. C., asserts that in the program for the White Cross Society Congress the melting point of carbolic acid is stated to range from 32° to 35° C., a very wide range. The British Pharmacopœia of 1885 recognizes as low a melting point as 33° C., but all the later pharmacopœias recognize the melting point only of practically pure phenol—namely, 38.8° and upward.—*Chem. & Drug.*, 1909, v. 75, p. 581.

Schamelhout, A., states that absolute phenol is required by the Ph. Fr. V, having a melting point of 42.5° and a boiling point of 182°. The Belgian phenol should melt between 40° and 41° and boil between 178° and 182°.—*Bull. Soc. roy. d. pharm.*, Brux., 1909, v. 53, p. 71.

A committee of the Syndicat général de la Droguerie française asks that the melting point of phenol be reduced from 42.5° to 41°.—*Bull. sc. pharmacol.*, Par., 1909, v. 16, p. 289.

Poulenc Frères state that the melting point of the Ph. Fr. V can only be obtained with a laboratory product. The commercial product which most nearly approaches this is the white phenic acid (l'acide phénique neige) which melts at 41 to 41.5°.—*Ibid.*, p. 408.

Gibbs, H. D., discusses the oxidation of phenol and the effect of some forms of light and of active oxygen upon phenol and anisol.—*Philippine J. Sc.*, 1909, v. 4, A, pp. 133–151. See also *Chem. News*, Lond., 1909, v. 100, pp. 68–70, 81–83, 94–96.

An unsigned article points out that the researches of H. D. Gibbs demonstrate that the reddening of phenol takes place in consequence of the formation of quinone and pyrocatechin, quinone and quinone derivatives being chiefly responsible. The brilliantly colored condensation product of quinone and phenol (phenol quinone) is possibly present.—*Drug Topics*, New York, 1909, v. 24, p. 231.

The Committee of Reference in Pharmacy recommends that for liquid phenol sufficient water should be added to produce 1 fluid drachm from 50 grains of phenol.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 288.

A correspondent outlines an easy method of liquefying phenol by placing the percentage of water in the bottle on top of the crystal acid and turning upside down. In a short time the water will permeate the crystal acid and you have your solution ready for prescription use.—*Practical Druggist*, 1909, v. 25, p. 11.

Alpers, W. C., suggests that the lower solubility of phenol, at the present time, is due to its being made from benzol.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 195.

Dohme and Engelhardt report several shipments of phenol assaying from 2 to 4 per cent of absolute phenol less than required.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 714. See also *Proc. Maryland Pharm. Ass.*, 1909, p. 73.

Woods, Charles D., reports six samples of liquefied carbolic acid examined; all of the samples were between 90 and 110 per cent (98–106) of the U. S. P., the range of variation permitted in the State of Maine.—*Rep. Maine Agric. Exper. Sta.* (1909), 1910, p. 187.

Sayre and Ziefle report five samples of phenol, two of which were below standard.—*Bull. Kansas Bd. Health*, 1909, v. 5, D. A. 16–23.

Mittelbach, William, does not like the formula for ointment of phenol. He asserts that, made with the unguentum of 1890 as a base, it will keep better and is otherwise more satisfactory.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 817.

Caldwell, Paul, asserts that the public still clamors for the 5 per cent ointment of carbolic acid. He suggests letting it have its say, for money talks, and pharmacists are fond of such oratory.—*Bull. Pharm.*, 1909, v. 23, p. 117.

Diehl, C. L., reports from the committee on N. F. recommending a change in the title of iodized carbolic acid N. F. to “phenolum iodatum.”—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1060.

Schamelhout, A., notes that the phenolated oil of the Ph. Fr. V is 2 per cent and that of the formulary [Belgian] is 5 per cent.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 56.

Diehl, C. L., reports from the committee on N. F. recommending the use of olive oil in place of cotton seed oil. A change in title to "Oleum phenolatum; phenolated oil" is recommended.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1080.

Dorset, M., discusses the available forms of phenol, and their uses as disinfectants.—Spatula, 1908-9, v. 15, p. 232.

Leighton, W. E. (St. Louis M. Rev., 1909, February), condemns the sale of carbolic acid to the public and warns the physicians who use carbolic acid in the form of moist compresses that unpleasant results not unfrequently follow its use.—J. Am. M. Ass., 1909, v. 52, p. 996.

An abstract from a paper by E. R. Zemp (N. York M. J.) asserts that alcohol is practically of little value as an antidote to carbolic acid, though when used locally it immediately arrests the caustic action of this drug when the two are used in immediate succession.—Drug Topics, New York, 1909, v. 24, p. 87.

Maberly has used with good results tincture of iodine as an antidote to phenol, both internally and subcutaneously. He thinks this should be sufficient to neutralize the toxic effects.—Nouv. remèdes, 1909, v. 25, p. 167.

An editorial (Lancet, 1909, v. 176, p. 562) calls attention to the work of Mercade (Arch. gen. med.) as to the toxic effects produced by carbolic acid as an antiseptic, and notes that while strong solutions are to be avoided, weak solutions may prove still more dangerous, owing to the greater penetration of solutions containing less than 5 per cent of carbolic acid.

Gray, Robert, asserts that carbolic acid is a perfect antidote to rabies and serves him many useful turns in his practice. He considers it an infallible knifeless cure for hæmorrhoids and finds that it aborts boils and ulcers and destroys incipient goiter and cancer.—J. Therap. & Dietet., Boston, 1908-9, v. 3, p. 138.

Burnett, J. A., asserts that pure phenol is efficient in the treatment of cases of rhus poisoning where too much surface is not involved. He applies it until the skin turns white and follows with alcohol until it is thoroughly neutralized.—Eclectic M. J., Cincin., 1909, v. 69, p. 188.

Gould, J. N., reports the successful use of phenol in the treatment of tetanus in a horse; 25 ounces of phenol were administered in the course of 17 days' treatment.—Am. Vet. Rev., 1909, v. 35, pp. 437-438.

Phillips, E. Margaret, reports a case of tetanus treated with carbolic injections followed by recovery.—Brit. M. J., 1909, v. 2, p. 1669.



Hailer, E., discusses the practicability of increasing the disinfecting value of phenols by the addition of acids. He concludes that acids, more particularly oxalic acid and sulphuric acid, materially increase the disinfecting value of phenols.—*Arb. a. d. k. Gsundhtsamte, Berl.*, 1909-10, v. 33, pp. 500-515.

Sargeant, F. Pilkington, points out that carbolic acid (phenol) is used for the destruction of the spores of fungi in a 5 per cent solution. Emulsified with soft soap, it is effective against the cabbage root fly and many other insect pests.—*Pharm. J., Lond.*, 1909, v. 29 (83), p. 236. See also *Drug Topics*, New York, 1909, v. 24, p. 342.

An editorial (*Lancet*, 1909, v. 176, pp. 1617-1620) discusses Lister and the antiseptic method in connection with Lord Lister's eightieth anniversary.

Additional references on the use of phenol will be found in *Index Medicus* and *J. Am. M. Ass.*

#### PHENOLPHTHALEIN.

Capps, Pratt, McCrae, and Halsey recommend the admission of phenolphthalein to the U. S. P., adding that this article has come quite extensively into use and its value seems to be definitely established. It might possibly be wise to add a preparation which can be given hypodermically.—*J. Am. M. Ass.*, 1909, v. 53, p. 792.

Hommell, P. E., thinks that the U. S. P. IX should recognize phenolphthalein as a pleasant, efficient laxative, in a satisfactory form which physicians could prescribe.—*Proc. New Jersey Pharm. Ass.*, 1909, p. 46.

"Sol" points out that the B. P. C. says phenolphthalein is readily soluble in 90 per cent alcohol (1 in 10), but he finds it difficult to dissolve it; in fact, it seems almost insoluble.—*Pharm. J., Lond.*, 1909, v. 29 (83), p. 27.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 45) report on two consignments of phenolphthalein melting at 252° C.

Orndorff and Black, discuss the chemistry of phenoltetrachlorophthalein and some of its derivatives.—*Am. Chem. J.*, 1909, v. 41, p. 349-393.

Rowntree, L. G., in a discussion on subcutaneous purgatives reports the clinical study of phenoltetrachlorophthalein.—*Tr. Am. M. Ass. Sec. Pharm. and Therap.*, 1909, pp. 173-186.

Abel and Rowntree present observations on the pharmacological action of some phthaleins and their derivatives, with especial reference to their behavior as purgatives.—*J. Pharm. & Exper. Therap.*, 1909-10, v. 1, pp. 231-264.

An editorial discusses the pharmacological action of phenolphthalein, and quotes Abel and Rowntree (see above) who point out that

phenolphthalein and its halogen substitution products do not differ markedly in pharmacological behavior.—*Merck's Arch.*, 1909, v. 11, p. 300.

Fleig, C., presents a note on the passage of phenolphthalein and of phenolphthalein disodoquinone through the organism.—*J. d. pharm. et d. chim., Par.*, 1909, v. 29, pp. 55-57.

Fraas, Eduard (Diss. Giessen, 1909, pp. 46) discusses the use of phenolphthalein as a cathartic and its value in veterinary practice.—*Jahresb. ü. Tier-Chem.*, 1909, Wiesb., 1910, v. 39, p. 1225.

Elmer, Warren Philo (*Med. Record*, Nov. 14, 1908) describes the physiological action and properties of phenolphthalein as ascertained by him from experiments upon dogs and on the treatment of 116 cases of various kinds. He concludes that this drug is an intestinal irritant, but its action is accompanied by very little discomfort.—*Merck's Rep.*, 1909, v. 18, p. 16.

Buck, Charles E., asserts that among the newer remedies that have gained in favor with the profession for their laxative virtues there is probably none that has a wider field of importance than phenolphthalein.—*J. Therap. & Diet.*, 1909-10, v. 4, pp. 327-328.

Becker, Henry C., asserts that phenolphthalein is the cathartic that is in vogue just at present. When taken internally, phenolphthalein is converted in the intestines into sodium phenolphthaleinate, which has very slight solubility and diffusibility. Its use is free from griping, and it gives a soft movement without the constipating after effect, as in the use of rhubarb and castor oil.—*Merck's Arch.* 1909, v. 11, p. 278.

Gilbride, John J., reports observations on the clinical use of phenolphthalein, and concludes that in phenolphthalein we have a valuable purgative, the abuse of which can to a considerable degree be obviated by having physicians write for it under its real name "phenolphthalein."—*Tr. Am. M. Ass., Sec. Pharm. and Therap.*, 1909, pp. 167-172.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 285-286) reviews some of the recent literature relating to the therapeutic use of phenolphthalein.

For additional references on the pharmacology and use of phenolphthalein, see *Index Medicus* and *J. Am. M. Ass.*

#### **PHENYLIS SALICYLAS.**

Hunt, Reid, points out that "phenylis salicylas" was formerly official in the U. S. P. as "salol," and is included in the Swedish and Dutch pharmacopœias as "salicylas phenylicus," as "salolum" in the Swiss, and "phenylum salicylicum" in the German, Austrian, and Belgian.—*Tr. Am. M. Ass., Sec. Pharm. and Therap.*, 1909, p. 15.

Beringer, George M., thinks that salol may well be left as phenyl salicylate, which characterizes it.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 795.

Seidell, Atherton, points out that the U. S. P. requires that phenyl salicylate be soluble in 2,333.0 parts of water; his results would indicate that it is soluble in 6,665.0 parts of water. The official solubility in alcohol is 1 in 5.0 parts; his results would indicate that it is soluble in 4.65 parts.—*J. Am. Chem. Soc.*, 1909, v. 31, p. 1168.

Caille, E., reports a study of the variation in the solidification temperature of mixtures of camphor and salol.—*Bull. Soc. scient. et méd. d. l'ouest, Rennes*, 1909, v. 18, p. 78.

Haynes, G. S., points out that salol is split up by alkaline secretion of the small intestine into salicylates and phenol. It is given mostly for its salicylic acid content, but the phenol produced is the cause of the poisoning that sometimes occurs. It acts as a satisfactory intestinal disinfectant.—*Folia Therap., Lond.*, 1909, v. 3, p. 13.

Friedenwald and Leitz, in a report of the experiments relating to the bacterial content of the fæces, with some researches on the value of certain intestinal antiseptics, assert that salol gives no results whatever.—*Am. J. M. Sc.*, 1909, v. 138, pp. 653–661.

Carle and Pont (*Lyon médical; Nouveaux Remèdes*, v. 26, p. 288) generally condemn the use of antiseptics in mouth washes and tooth powders, since most of them exercise an irritant action on the buccal mucous membrane, especially after prolonged use. Salol is especially harmful in this respect, and is most prone to give rise to eczematous affections.—*Year-Book of Pharmacy, Lond.*, 1909, p. 122.

An abstract from the *Lancet* discusses the production of eczema by salol in dentifrices, and points out that the harmful action is due to the readiness with which salol splits up in contact with moisture into salicylic acid and phenol.—*Dental Cosmos, Philadelphia*, 1909, v. 51, p. 381.

Additional references on the pharmacology and uses of phenyl salicylate will be found in *Index Medicus* and *J. Am. M. Ass.*

### PHOSPHORUS.

Prideaux, Edmund Brydges Rudhall, in a further contribution on the atomic volumes of phosphorus, discusses phosphorus and bromine.—*J. Chem. Soc., Lond.*, 1909, v. 95, pp. 445–449.

Thorpe, Thomas Edward, presents a note on the detection of white or ordinary phosphorus in the igniting composition of Lucifer matches.—*Ibid.*, pp. 440–441.

Gibson and Estees report observations on the indirect colorimetric determination of phosphorus with uranium acetate and potassium ferrocyanide.—*J. Biol. Chem.*, 1909, v. 6, pp. 349–357.

Denigès, G., describes a microchemical test for phosphorus.—*Pharm. J., Lond.*, 1909, v. 28 (82), p. 868. See also *Proc. VIIth Internat. Congress App. Chem., Sec. VIIIb, Pharmacy*, 1909, London, 1910, pp. 61–65.

Bohrisch, P., discusses the production of phosphorated oil and the quantitative determination of phosphorus in this preparation.—*Pharm. Zentralh.*, 1909, v. 50, pp. 19–26, 41–48, 69–75.

The same author discusses the stability and keeping qualities of oil of phosphorus, and reports a number of observations.—*Ibid.*, v. 50, pp. 597–605, 619–633.

Berger discusses the paper by P. Bohrisch on phosphorated oil, and points out the difficulty of determining phosphorus quantitatively.—*Schweiz. Wchnschr. f. Chem. u. Pharm., Zürich*, 1909, v. 47, pp. 749–752.

Schamelhout, A., notes that while the strength of the phosphorated oils of the Ph. Fr. V and of the Ph. Belg. III is the same (1 per cent), the French medicament contains 4 per cent of ether.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 56.

Stich, Conrad, discusses the nature of the mold-like appearances on the surface of concentrated phosphorated oils.—*Pharm. Ztg., Berl.*, 1909, v. 54, p. 387.

An unsigned article reviews some of the recent comments that have been made on phosphorated oils and calls attention more particularly to the article by Bohrisch.—*Ibid.*, pp. 859–860. See also pp. 97–98.

Taylor, Augustus Carrier, points out that in the N. F. we have formulas for solution of phosphorus, spirit of phosphorus, and elixir of phosphorus. He recommends that the spirit be retained and that the other two formulas be dropped.—*Pharm. Era*, 1909, v. 41, p. 593.

Hartz, J. D. Aug., presents a formula for a mass of phosphorus, being a mixture of phosphorus, oil of theobroma, and yellow wax.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 970.

Kunze discusses the present maximum dose of phosphorus in the Ph. Germ. IV, and points out that present-day practices would suggest a material change in the permissible single as well as daily dose of this substance.—*Pharm. Ztg., Berl.*, 1909, v. 54, p. 988.

Filippi and Oberto report some researches on the toxicology of phosphorus.—*Arch. farmacol. sper.*, 1909, v. 8, pp. 211–219.

Harnack, E. (*Münch. med. Wchnschr.*, 1909, v. 56, No. 9), discusses the manifestation of phosphorus poisoning.—*J. Am. M. Ass.*, 1909, v. 52, p. 1218.

Koch, W., presents a paper on phosphorus compounds as brain foods. He concludes that there is no evidence of any need to supply phosphorus to the brain conditions of exhaustion, as a lack of that element has not been demonstrated.—*Ibid.*, pp. 1381–1383.

Sargeant, F. Pilkington, asserts that phosphorus is used, generally dissolved in oils or fats, for the destruction of rats, mice, beetles, etc.—Pharm. J. Lond., 1909, v. 29 (83), p. 237.

Additional references on the chemistry, pharmacology, and uses of phosphorus will be found in Exp. Sta. Rec.; Chem. Abstr. Am. Chem. Soc.; Index Medicus and J. Am. M. Ass.

### PHYSOSTIGMA.

Dohme and Engelhardt think that the U. S. P. assay process for physostigma works well, but point out that a sodium bicarbonate free from carbonate and caustic alkali must be used as these contaminating substances decompose eserine very rapidly.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 885.

Bernegau, L. Henry, reports that in assaying physostigma he employs both gravimetric and volumetric methods as a check, and points out that physostigma preparations deteriorate rapidly and should be assayed every four months.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 80. See also Am. J. Pharm., Phila., 1909, v. 81, p. 124.

Roberts, John G., in a discussion of the U. S. P. assay methods points out that the standard for alkaloid in 100 cc. of tincture of nux vomica is over seven times as high as that for tincture of physostigma, but the same amount of tincture is directed to be used in both cases. When it is taken into account that the alkaloid which is titrated from the nux vomica represents the full 100 cc. and the alkaloid from the physostigma only 50 cc. the difference is even greater.—Merck's Rep., 1909, v. 18, p. 204.

Vanderkleed, C. E., reports on five assays of calabar bean; lowest 0.154, highest 0.230, all above standard.—Proc. Pennsylvania Pharm. Ass., 1909, p. 129.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 17), report one sample of calabar beans examined, containing 0.14 per cent ether soluble alkaloid.

Lyons, A. B., thinks that physostigma is obsolete and that the official extract of this drug is an impossible preparation.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 806.

Cook, E. Fullerton, reports that the formula for tincture of physostigma is entirely satisfactory.—*Ibid.*, p. 1003.

See also under "Physostigminæ Salicylas."

### PHYSOSTIGMINÆ SALICYLAS.

Harbert, J. P., points out that eserine or physostigmine, the active principle of calabar bean or "ordeal bean," is the most generally used myotic. It is allied in its physiological action to jaborandi, pilo-

carpine and muscarine; it is antagonized by atropine, daturine, hyoscyne, and homatropine.—*Eclectic M. J.*, Cincin., 1909, v. 69, p. 237.

Wood (C. A.), Jackson, Schneideman, and Davis recommend that physostigmine (eserine) salicylate be dropped from the U. S. P.—*J. Am. M. Ass.*, 1909, v. 53, p. 793.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 287-288) quotes Holterbach (*Berl. tierärztl. Wchnschr.*, 1909, No. 44, p. 804), who finds that the salts of eserine will retain their full activity for years if kept in sealed glass tubes.

Reichard, C., presents a compilation of the reactions given by physostigmine.—*Pharm. Zentralh.*, 1909, v. 50, pp. 375-384.

Goth, L. (*Zentralbl. f. Gynäkol.* 1908, v. 32, No. 51), reports three cases of severe ileus, from paralysis of the bowels after major operations, successfully treated by injections of physostigmine salicylate.—*J. Am. M. Ass.* 1909, v. 53, p. 339.

Joseph and Meltzer report observations on the life-saving action of physostigmine in poisoning by magnesium salts. They conclude that this alkaloid is capable of efficiently antagonizing some of the toxic actions of magnesium salts.—*J. Pharm. & Exper. Therap.*, 1909-10, v. 1, pp. 369-387.

#### PHYTOLACCA.

Fussel, M. H., in recommending the deletion of *phytolacca* from the *Pharmacopœia*, asserts that it is gathered by the poor in lieu of *asparagus*. He asks is it ever used in medicine.—*Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, p. 204.

Capps, Pratt, McCrae, and Halsey, recommend the deletion of *phytolacca* and *fluidextractum phytolaccae* from the U. S. P.—*J. Am. M. Ass.*, 1909, v. 53, p. 792.

Phillimore, Fred. G., enumerates *phytolacca* among the drugs that are useful in combating the vomiting of pregnancy.—*J. Therap. & Diet.*, 1909-10, v. 4, p. 11.

Abbott, Solon, asserts that *phytolacca* is indicated in rheumatism with heavy aching pains, worse in damp weather, periosteum involved, glands of axilla and neck enlarged. Patient worse at night.—*Ibid.*, 1908-9, v. 3, p. 205.

Howes, Pitts Edwin, gives *phytolacca* to patients with affected joints and enlarged lymphatics when the mucous membranes are of a pallid hue and the tongue has the same color, with a dirty coating.—*Ibid.*, 1908-9, v. 3, p. 217.

Webb, Frank, asserts that *phytolacca* used hypodermically does not seem to act at all except in the form of myalgia that it is indicated in and then very slowly; in fact so slowly that he can not see the value of its administration.—*Eclectic Rev.*, 1909, v. 12, p. 201.

Hinton, G. Allison, states that specific phytolacca, echinacea, iris and kindred vegetable alteratives have been used by eclectic physicians for many years, in the treatment of syphilis. His observations have convinced him that the results obtained are negative in 95 per cent of the cases treated.—*Natl. Eclect. Med. Ass. Quart.*, 1909-10, v. 1, p. 113.

#### PILOCARPINÆ HYDROCHLORIDUM.

The White Cross Congress held in Paris in October, 1909, suggests an optical rotation of  $+91^\circ$  at  $18^\circ$  C. for an aqueous solution of pilocarpine hydrochloride 2 gm. in 100 cc.—*Chem. & Drug.*, 1909, v. 75, p. 682.

Umney, J. C., in commenting on the proposed international standard for pilocarpine asserts that the melting point for the hydrochloride is given as  $198^\circ$  to  $200^\circ$  C. The French Codex gives  $200^\circ$ , the German Pharmacopœia  $193^\circ$  to  $195^\circ$ , and the U. S. P.  $195.9^\circ$ . Commercial samples usually melt at  $195^\circ$  to  $198^\circ$  C. The melting point of the nitrate is given at  $174^\circ$  (minimum), the Codex figure being  $177^\circ$  and that of the U. S. P.  $170.9^\circ$ .—*Ibid.*, p. 581.

Merck, E (Darmstadt), criticises the Ph. Fr. V statement as to the solubility of pilocarpine and says that it is easily soluble in benzin ( $C_6H_6$ ) as well as in water. He cites Hager's *Pharmaceutische Praxis*, 2d ed., v. 2, pp. 642, 625. The Ph. Fr. V also states that a concentrated aqueous solution of pilocarpine hydrochloride is precipitated by alkalis or ammonia. In the article on pilocarpine, however, it says that solutions of the salts of pilocarpine are not precipitated by ammonia. The latter statement is correct.—*Bull. sc. pharmacol.*, Par. 1909, v. 16, pp. 551, 552.

Harbert, J. P., asserts that local applications of pilocarpine, in 1 per cent solution will cause marked contraction of the pupil, the action beginning in 10 to 15 minutes and continuing for about 3 hours. Myosis and spasm of accommodation are also produced. These phenomena are sometimes accompanied by aching pain.—*Eclectic M. J.*, Cincin., 1909, v. 69, p. 239.

MacLean, Hugh, presents some further observations on the action of muscarin and pilocarpine.—*Biochem. J.*, Liverpool, 1909, v. 4, pp. 66-71.

Webb, Frank, asserts that pilocarpine in 1-20 grain doses hypodermically, where the jaborandi symptoms are present, is one of the greatest remedies that we have.—*Eclectic Rev.*, 1909, v. 12, p. 202.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 288-289) reviews some of the recent literature relating to the use of pilocarpine. See also *Jahresb. u. Tier-Chem. and Index Medicus*.

## PILOCARPUS.

Holmes, E. M., points out that *Pilocarpus jaborandi*, official in the Ph. Brit. is practically unobtainable, and suggests the use of *P. microphyllus* under the title *jaborandi*, U. S. P.—Pharm. J., Lond., 1909, v. 28 (82), pp. 547–548.

Kottenhoff, Georges, presents an exhaustive paper on the *jaborandis* and *pilocarpine*.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, pp. 36–54.

A committee of Section III, Second International Congress for the Suppression of Adulterations (Paris, 1909), proposes as the definition for *jaborandi* leaves: the isolated leaflets of the imparipinnate leaf of different species of *Pilocarpus* (*P. pennatifolius* Lem., *P. jaborandi* Holmes, *P. microphyllus* Stapf and varieties) of which the *pilocarpine* content is at least 0.35 per cent, and gives their characters.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 353.

Schamelhout, A., notes that the dimensions of the leaflets of the species mentioned are very variable. The Ph. Belg. admits only the leaf of *P. pennatifolius* Lem. It does not require an alkaloidal content.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 168.

Umney, J. C., points out that the leaves of *P. microphyllus* are not yet official in the Ph. Brit., although their use has been sanctioned by the General Medical Council. The minimum requirement for alkaloid in his opinion is too low. It is set at 0.35 per cent, and should usually be 0.5 per cent, which is the requirement of the U. S. P. The greater part of the leaves of *P. microphyllus*, now almost entirely used in pharmacy, contain at least 0.6 per cent.—Chem. & Drug., 1909, v. 75, p. 580.

Peters, W., gives the ash content of dried *pilocarpus* as 8.76 to 10.87 per cent, with the color varying from gray to light gray or dark gray.—Apoth. Ztg., Berl., 1909, v. 24, p. 538.

Tunmann, O., reports on a pharmacognostic study of *P. pennatifolius* Lem. with special consideration of the alkaloid content.—Chem. Ztg. Cöthen, 1909, v. 33, p. 1017. See also Schweiz. Wchnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, pp. 177–183.

Caesar & Loretz (Geschäfts-Ber., 1909, pp. 90–91) present the Keller-Fromme method of assay for *pilocarpus* leaves.

Dohme and Engelhardt assert that the U. S. P. method for the assay of *pilocarpus* is good.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 885.

Lyons, A. B., discusses the official assay of *pilocarpus*, and asserts that he has been in the habit of using a chloroform-ether mixture and believes that this will exhaust the drug.—*Ibid.*, pp. 809–810.

Dunn, John A., suggests the use of ether for shaking out the alkaloid in the assay of fluid extract of *pilocarpus*.—*Ibid.*, p. 952.



Fromme, G., asserts that chloroform can be used to advantage in the assay of pilocarpus leaves, particularly if precaution is taken to prevent decomposition of the chloroform by immediate evaporation.—*Geschäfts-Ber. v. Caesar & Loretz*, 1909, p. 25.

Kline, C. M., reports on three lots of pilocarpus, which assayed from 0.101 to 0.68.—*Proc. N. W. D. A.*, 1909, p. 135.

Pearson, W. A., assayed three lots of pilocarpus. Only one contained less than 0.5 per cent of alkaloids required by U. S. P.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 181.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 35) report two samples of *P. microphyllus* free from stalk, yielding 0.8 and 0.6 alkaloid by the U. S. P. process. Two others contained stalks and gave 0.698 and 0.65 per cent alkaloid from the leaves; 0.55 and 0.57 from the stalk. The percentage of stalk in the samples was 28 and 25.

Caldwell, Paul, asserts that fluid extract of pilocarpus should be dropped as the alkaloid is used instead.—*Bull. Pharm.*, 1909, v. 23, p. 115.

Leming, W., reports the following specific indications for *P. microphyllus*: Acute toxæmias from retention of bodily excretions or introduction of external agents; with strong pulse, dry skin, evidences of congestion and convulsive tendencies.—*J. Therap. & Diet.*, 1909-10, v. 4, pp. 276-278.

An editorial note asserts that jaborandi will prove effective in cases where the patient presents a pulse which is full and hard and at the same time strong, with a sharp stroke as it is felt by the finger, that is combined with a dry, hot skin which is produced by an arrest of the secretions.—*Ibid.*, 1909-10, v. 4, p. 96.

Smith, J. D., points out that *P. jaborandi* is one of our surest diaphoretics.—*Eclectic M. J.*, Cincin., 1909, v. 69, pp. 85-87.

Howes, Pitts Edwin, points out that jaborandi is indicated in rheumatic cases, either acute or chronic, where the skin is dry, the urine scanty, the pulse full and strong, the temperature increased and pains severe.—*J. Therap. & Dietet.*, Boston, 1908-9, v. 3, p. 217.

An editorial (*Critic & Guide*, 1909, v. 12, p. 105) asserts that pilocarpus itself should not be used, because it contains two antagonistic alkaloids—pilocarpine and jaborine—and asserts that whenever pilocarpus is indicated the alkaloid pilocarpine should be used instead.

## PILULÆ.

Diehl, C. L., reports from the committee on N. F. recommending the deletion of the introductory remarks to "Pilulæ," also the methods given for coating pills.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1082.

Hallberg, C. S. N., expresses the belief that if there is any one feature of the National Formulary that has been appreciated it is the introductory notices. He thinks they are in the right place and are very helpful.—*Ibid.*, p. 1082.

Lascoff, J. Leon, discusses the dispensing of pills and capsules, and calls attention to the following rules to be observed in dispensing pills: (1) The mass should be made as hard and as small as is consistent with proper manipulation; (2) it should be divided with exactness, to insure an equal size of pill.—*Merck's Rep.*, 1909, v. 18, p. 68.

An abstract from an article by Danzee (Rev. pharm. Flandres) gives a formula for coating pills that are to be absorbed in the intestines with a mixture of benzonaphthol, tannigen, and salol.—*Drug Topics*, New York, 1909, v. 24, p. 186. See also *J. d. pharm. et d. chim., Par.*, 1909, v. 29, p. 533.

Searby, W. M., discusses the preservation of coated pills, tablets, and tablet triturates, and enumerates some of the precautions necessary for keeping these preparations satisfactorily under different conditions.—*Pacific Pharmacist*, 1909-10, v. 3, pp. 183-185.

#### PILULÆ AD PRANDIUM N. F.

Posey, H. G., thinks that "Dinner pills" should be omitted, as the official pill of aloes and mastic is quite sufficient.—*Proc. Am. Pharm. Ass.*, 1909, v. 57 p. 993.

Diehl, C. L., reports from the committee on N. F. recommending that if "Pilulæ ad prandium" are to be retained the note should be deleted.—*Ibid.*, 1909, v. 57, p. 1083

#### PILULÆ ALOINI, STRYCHNINÆ ET BELLADONNÆ N. F.

Diehl, C. L., reports from the committee on N. F. recommending that if the formula for pills of aloin, strychnine, and belladonna are to be retained the note should be deleted.—*Ibid.*, p. 1083.

#### PILULÆ ANTINEURALGICÆ N. F.

Diehl, C. L., reports from the committee on N. F. the need for introducing a formula for extract of aconite leaves, required in the formula for Gross' antineuralgic pills.—*Ibid.*, p. 1083.

#### PILULÆ ANTIPERIODICÆ N. F.

Diehl, C. L., reports from the committee on N. F. asserting that in view of the polypharmaceutical character of this preparation we would recommend its deletion, but if retained see no reason why the formula should be changed.—*Ibid.*, p. 1083.

## PILULÆ CATHARTICÆ VEGETABILES.

Fussell, M. H., thinks that vegetable cathartic pills should be relegated to the National Formulary.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 205.

## PILULÆ FERRI CARBONATIS.

Schamelhout, A., states that the Blaud pills or compound pills of carbonate of iron contain, in France potassium sulphate, in Belgium sodium sulphate; the former weigh about 0.30 gm., the latter 0.25 gm.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 71.

Lemaire, P., reviews the history of Blaud's pills, and calls attention to the various modifications of the formula that have been published from time to time; also reproduces the original formula published by Blaud.—Répert. d. pharm., Par., 1909, v. 21, pp. 2-4.

Serger, Hermann, discusses the valuation of pills of carbonate of iron and outlines a method of assay.—Ber. d. pharm. Gesellsch., Berl., 1909, v. 19, pp. 128-132.

An abstract (Suedd. Apoth. Ztg.) outlines a method for examining pills of ferrous carbonate. The facts to be taken into consideration are the weight of at least 5 pills, the loss on drying for 6 hours at 105° C., the appearance of the cut pill, the disintegration in 25 cc. of water at 15° C., at 37° C., and in 25 cc. of 3 per cent hydrochloric acid at 37° C., finally the determination of the constituents.—D. A. Apoth. Ztg., N. Y., 1909-10, v. 30, p. 32.

The Belgian inspectors of pharmacies report Blaud's and Vallet's pills generally better than heretofore, but still having a large part of the iron in the state of ferric oxide and containing almost no carbonate; they are then very hard, very difficult to crush.—J. d. pharm. d'Anvers, 1909, v. 65, p. 625.

Schamelhout, A., thinks a great many pharmacists would prepare these pills if they did not have to be silver coated.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 267.

## PILULÆ GLONIOINI N. F.

Diehl, C. L., reports from the committee on N. F. recommending a change in title to "Pilulæ Glycerylis Nitratis."—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1083.

## PILULÆ LAXATIVÆ COMPOSITÆ.

Fussell, M. H., thinks that compound laxative pills should be relegated to the National Formulary.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 205.

## PILULÆ PODOPHYLLI, BELLADONNÆ ET CAPSICI.

Fussell, M. H., thinks that pills of podophyllum, belladonna, and capsicum should be relegated to the National Formulary.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 205.

## PIMENTA.

Woods, Charles D., defines pimento as the dried fruit of the *Pimenta pimenta* (L.) Karst, which contains not less than 8 per cent of quercitannic acid (calculated from the total oxygen absorbed by the aqueous extract); not more than 6 per cent of total ash, nor more than 0.5 per cent of ash insoluble in hydrochloric acid, and not more than 25 per cent of crude fiber.—Rep. Maine Agric. Exper. Sta. (1909), 1910, Ap. p. 117.

Fitz-Randolph, R. B., reports 159 samples of allspice examined, of which 2 were found to be adulterated: 1 with ground cocoanut shells and 1 with a mixture of cocoanut shells and olive stones.—Rep. New Jersey Bd. Health (1909) 1910, p. 194.

## PIPER.

Woods, Charles D., defines black pepper as the dried immature berry of *Piper nigrum* which contains not less than 6 per cent of nonvolatile ether extract, not less than 25 per cent of starch, not more than 7 per cent of total ash, not more than 2 per cent of ash insoluble in hydrochloric acid, and not more than 15 per cent of crude fiber. One hundred parts of the nonvolatile ether extract contain not less than 3.25 parts of nitrogen. Ground black pepper is the product made by grinding the entire berry and contains the several parts of the berry in their normal proportions.—Rep. Maine Agric. Exper. Sta. (1909), 1910, Ap., p. 119.

The Catalogue of Definitions adopted by the International Congress for the Suppression of Adulteration (Geneva, 1908) states that pepper is the dried berry of *Piper nigrum*, cultivated generally in the Indies, the extreme Orient. Black pepper consists of the berry of *Piper nigrum*, taken before maturity and dried, of which the external zone then becomes rugous and takes a blackish color. Powdered black pepper should consist only of the berries of black pepper, ground and pulverized without the addition of any other matter. White pepper is formed by the berry of *Piper nigrum* which is matured and of which the external part has been removed by the producer by an appropriate method of decortication.—Bull. sc. pharmacol., Phar., 1909, v. 16, p. 235.

Kline, C. M., reports pepper met with at the port of Philadelphia, which contained mineral matter coated with carbon.—Proc. N. W. D. A., 1909, p. 136.

Notices of judgment regarding pepper are given in (U. S. Dept. Agr. Notices of Judgment 134-140, pp. 14; 141-153, pp. 2 each; 154-155, pp. 3 each; 156-159, pp. 2 each; 160, pp. 3; 161-162, pp. 2 each; 163, pp. 7; 164, pp. 2).—Exp. Sta. Rec., 1910, v. 22, p. 664.

Dunlap, Renick W., reports 6 samples of pepper examined, 1 not passed.—Rep. Ohio Dairy & Food Com., 1909, p. 61.

Fitz-Randolph, R. B., reports 375 samples of ground black pepper, of which 10 were found to be adulterated.—Rep. New Jersey Bd. Health (1909), 1910, p. 195.

Ducros, H. A. (Bull. Inst. Egyptien, 5, ser. 2 (1908), No. 2, pp. 185-194), gives information regarding the use of pepper in Egypt as a food and drug; pepper adulteration is discussed with special reference to local conditions.—Exp. Sta. Rec., 1910, v. 22, p. 467.

#### PIPERINA.

Capps, Pratt, McCrae, and Halsey recommend the deletion of piperina from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

#### PIX LIQUIDA.

Caldwell, Paul, thinks that oil of tar should be used in place of tar in making tar ointment, because every time tar is heated and cooled particles of resin separate, rendering the ointment unsightly.—Bull. Pharm., 1909, v. 23, p. 117.

Mittelbach, William, thinks the formula for tar ointment very satisfactory.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 817.

Hague, George W., outlines a method for making sirup of tar in which he recommends that sand be used for weighing out the tar to prevent it sticking to the paper in which it is weighed.—Meyer Bros. Drug., St. Louis, 1909, v. 30, p. 39.

Sargeant, F. Pilkington, asserts that tar is used as an insecticide, particularly in arboriculture, where it is used for protecting wounds on trees; it is also an ingredient of some sheep dips.—Pharm. J., Lond., 1909, v. 29 (88), p. 237.

#### PLUMBI ACETAS.

White, Edmund, presents a description of lead acetate, discusses the usual contaminations, and presents a number of tests to which the substance used as a reagent should comply.—Pharm. J., Lond., 1909, v. 28 (82), p. 274.

Dohme and Engelhardt report that on several occasions lead acetate was not as soluble as required.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 716.

Baird, J. W., calls attention to the uneven distribution of medicinal substances in 10 batches of lead acetate suppositories made by the hot

process on prescriptions filled in Boston drug stores. He gives the figures in detail and concludes that the suppositories made by the hot process are not at all uniform and rarely contain the real dose prescribed. He suggests that if improvement can not be secured this process should be abandoned entirely for the cold process.—Proc. Massachusetts Pharm. Ass., 1909, p. 124.

Goadby and Goodbody contribute a note on the pathology of lead poisoning.—Lancet, 1909, v. 177, pp. 988-991.

Vandergrift, G. W., reports a case of retinitis due probably to acute lead poisoning.—Med. Rec. N. Y., 1909, v. 75, p. 399.

Additional references on the pharmacology and toxicology of lead and lead acetate will be found in Index Medicus and J. Am. M. Ass.

#### PLUMBI IODIDUM.

"C. C." discusses the pharmacopœial requirements for lead iodide.—Répert. d. pharm., Par., 1909, v. 21, pp. 156-157.

#### PLUMBI OXIDUM.

White, Edmund, describes lead oxide used as an analytical reagent, and gives a number of tests to which the article should comply.—Pharm. J., Lond., 1909, v. 28 (82), p. 585.

A committee of the Syndicat général de la Droguerie française asks that limits of toleration of iron and copper be fixed for lead oxide.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 289.

Remington and Hartley review the Ph. Brit. requirements for litharge and report a number of analyses of a commercial product to give an idea of the composition of litharge as at present obtainable on the English market.—Pharm. J., Lond., 1909, v. 28 (82), pp. 670-671.

Milbauer, Jaroslav, reports physical, chemical, and technical studies of litharge.—Chem. Ztg., Cöthen, 1909, v. 33, pp. 513-514; 522-523; 950-951; 960-961.

Dohme and Engelhardt report two shipments of lead oxide that were insoluble in diluted nitric acid and had to be rejected.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 716.

Pearson, W. A., reports one lot of lead oxide containing carbonates equivalent to 2.4 per cent of basic lead carbonate.—Proc. Pennsylvania Pharm. Ass., 1909, p. 181.

#### PODOPHYLLUM.

Harris, J. Arthur, reports a study of the leaves of *Podophyllum peltatum*.—Bot. Gaz. Chicago, 1909, v. 47, pp. 438-444.

The indigenous drugs committee of India points out that investigators in the Indian hospitals agree that the resin from *Podophyllum*

*emodi* is a very useful chologogue purgative, and equal to the resin from *P. peltatum*.—Chem. & Drug., Lond., 1909, v. 75, p. 344.

Umney, John C., asserts that the report of the Indian indigenous drug committee clearly calls for further investigation of the possible uses of *P. emodi*, and quotes a number of paragraphs summarizing results of investigations by various authors.—*Ibid.*, 1909, v. 75, p. 385.

Henry, Thomas A., asserts that the work so far done on the American and Indian podophyllins, derived, respectively, from *P. peltatum* and *P. emodi*, leaves no doubt regarding the principal constituents.—*Ibid.*, 1909, v. 75, p. 487.

Millard, E. J., asserts that he has more than a suspicion that the resin from the Indian drug has been used in the manufacture of pills, especially of a proprietary nature.—*Ibid.*, 1909, v. 75, p. 420.

Scoville, Wilbur L., presents a study on the resin obtained from *P. peltatum* and *P. emodi* and presents a table showing the percentage of resin of each variety which was found to be soluble in the solvents noted.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 897-901.

Lelsz, L. G., discusses the determination of podophyllum resin and concludes that exposure to the dry heat of the air bath at 100° C. results in volatilizing a portion of the constituents of the resin; the loss is greater in proportion to the time of the exposure.—Merck's Rep., 1909, v. 18, p. 114.

Lyons, A. B., thinks that an assay process for podophyllum might be included in the U. S. P.—Proc. Am. Pharm. Ass., 1909, v. 57 p, 801.

Umney, John C., in commenting on *P. emodi*, asserts that the resin obtained from *P. peltatum* varies from 3 to 7 per cent. The average, up to 10 years ago, was 6.23, but this percentage has fallen considerably during the last decade.—Chem. & Drug., 1909, v. 75, p. 522.

Gane and Webster point out that while formerly podophyllum came into the market of good size, clean, and carefully freed from rootlets, at the present time only a very poor grade of the drug is obtainable. It is thin, scragly, and with rootlets adhering.—Drug Topics, New York, 1909, v. 24, p. 84.

Vanderkleed, C. E., reports 26 assays of mandrake root, lowest 2.10, highest 5.53 per cent resin; 5 above and 21 below standard.—Proc. Pennsylvania Pharm. Ass., 1909, p. 129.

Becker, Henry C., asserts that podophyllum used more especially in those cases of constipation associated with hepatic insufficiency. Its active principle, podophyllin, is prescribed by preference.—Merck's Arch., 1909, v. 11, p. 278.

An editorial note (J. Therap. & Diet., 1909-10, v. 4, p. 64) asserts that the patient who needs podophyllum will present signs of rheumatic and syphilitic taints, usually attended by sluggishness and torpidity of the liver, combined with constipation.

**POTASSII ACETAS.**

A committee of the Syndicate général de la Droguerie française asks that the presence of chlorides and sulphates be tolerated in potassium acetate, the Codex permits these in the official potassium carbonate used in the preparation of this salt.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 289.

Bachman, Gustave, reports that in the potassium acetate examined he found a minimum of 97.6 and a maximum of 98.2 per cent.—Proc. Minnesota Pharm. Ass., 1909, p. 70.

The Belgian inspectors of pharmacies report neglect to keep potassium acetate in drying bottles; it is often found liquified. It is also deteriorated by chlorides and organic matters.—J. d. pharm. d'Anvers, 1909, v. 65, p. 582.

Howes, Pitts Edwin, asserts that potassium acetate is an efficacious agent in cases of rheumatism where the pain is more severe upon pressure and the joints are swollen, with a dirty coating on the tongue and torpidity of the kidneys.—J. Therap. & Dietet., Boston, 1908-9, v. 3, p. 217.

An editorial (*Ibid.*, 1909-10, v. 4, p. 64) note asserts that potassium acetate is an ideal remedy for the removal of waste and broken down solid materials from the blood.

**POTASSII BICARBONAS.**

Bachman, Gustave, found potassium bicarbonate from 96.12 to 99.29 per cent pure.—Proc. Minnesota Pharm. Ass., 1909, p. 70.

Goodhart, J. F. (Practitioner, July, 1909), claims that all the uric acid solvents, so much vaunted, appear to be equally useless for that special purpose; but salines have their value, if given with discrimination for facilitating the excreting power of the several abdominal glands.—J. Am. M. Ass., 1909, v. 53, p. 490.

**POTASSII BITARTRAS.**

A news note calls attention to a report of Consul Crowninshield, of Naples, regarding the methods of obtaining bitartrate of potash and the export trade of Italy in crude tartar.—Oil, Paint, and Drug Reporter, New York, 1909, v. 76, Sept. 27, p. 16.

Dunn, John A., suggests a modification for the U. S. P. assay method of potassium bitartrate.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 953.

Kollo, Constantin, asserts that potassium bitartrate offers a practical and reliable basis for titrimetric solutions.—Pharm. Zentralh., 1909, v. 50, pp. 315-317.



Hefelman, Rudolf, calls attention to some of the suggestions previously made for utilizing potassium bitartrate as a standard for normal solutions.—*Ibid.*, pp. 834–335.

Thomann reviews the article by Kollo on the use of potassium bitartrate as a basis for the standardization of volumetric solutions.—*Schweiz. Wchnschr. f. Chem. u. Pharm.*, Zürich, 1909, v. 47, p. 462.

Halverson, J. O., reports six samples of cream of tartar examined; one not passed.—*Rep. Food & Drug. Com. Missouri*, 1909, p. 18.

Bachman, Gustave, reports that in the four samples of potassium bitartrate examined he found a minimum of 52.6 per cent and a maximum of 99.2 per cent.—*Proc. Minnesota Pharm. Ass.*, 1909, p. 70.

Scovell, M. A., reports cream of tartar not up to the pharmacopœial standard.—*Rep. Kentucky Agric. Exper. Sta.* (1908–9), 1910, p. 7.

Committee on drug market (quoting Lab. Inland Rev. Dep., Ottawa, Can.) reports that of 37 samples 1 was sodium bicarbonate, 1 acid phosphate of lime and starch, 1 burnt alum and starch, 15 less than 95 per cent; of 93 samples of purified, 21 were 97.5 per cent, 58 less than 92.5 per cent; 1 Rochelle salt, 1 burnt alum and starch.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 732.

The Belgian inspectors of pharmacies report cream of tartar frequently debased by calcium tartrate and sometimes containing a large quantity of calcium sulphate.—*J. d. pharm. d'Anvers.*, 1909, v. 65, p. 586.

Schamelhout, A., says this is the same old complaint. The Ph. Belg. allows a small quantity of calcium tartrate.—*Bull. Soc. roy. d. pharm.*, Brux., 1909, v. 53, p. 237.

The examination of drug samples in 1907 shows that of 582 samples of cream of tartar examined 35 were found adulterated or not up to standard.—*Pharm. J., Lond.*, 1909, v. 28 (82), p. 182.

Southall Bros. & Barclay (Rep., 1908–9, Birmingham, 1910, p. 30) report that in but few instances has the amount of real bitartrate in samples of cream of tartar fallen below 99 to 100 per cent. A sample showing 93.5 per cent when assayed by incineration and titration of resulting  $K_2CO_3$ , proved to contain 0.96 per cent of sulphate as  $H_2SO_4$ . Arsenic has in no case been present in excess of 1 part per million, and the maximum amount of lead in any sample has been 10 parts per million.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 291–292) quotes Eichhorst (*Med. Klinik*, 1909, No. 11, p. 381) who believes that potassium bitartrate has unjustly fallen into disuse as a therapeutic agent, and reports some observations in connection with its use in the treatment of cirrhosis of the liver.

## POTASSII BROMIDUM.

A committee of Section III, Second International Congress for the Suppression of Adulterations (Paris, 1909), suggests for potassium bromide that it should contain at least 98 per cent pure KBr, may contain potassium chloride (maximum 1.50 per cent) and a small quantity of potassium carbonate (maximum 0.10 per cent), it should not contain more than 0.50 per cent water of occlusion, may contain traces of sulphates (test on 2 gm.).—Bull. sc. pharmacol., Par., 1909, v. 16, p. 425.

Schamelhout, A., says that this product might be considered as officinal. The Ph. Belg. III does not tolerate the carbonate nor sulphate; it permits 1.93 per cent of chloride.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 182.

Umney, J. C., points out that the minimum of bromide—namely, 98 per cent—although it is higher than the U. S. P., is in his opinion unnecessarily low. The requirement of the Ph. Brit. is 98.9, and as the article is used largely in pharmacy (although of course to some extent in photography), it should be placed as high as practicable.—Chem. & Drug., 1909, v. 75, p. 581.

Paal and Zahn report observations on colloidal potassium bromide.—Ber. d. deutsch. chem. Gesellsch., Berl., 1909, v. 42, p. 293.

von Schulz, W. K., presents observations on the qualitative and quantitative determination of potassium chloride and potassium bromide, and points out the need for including in the Pharmacopœia a test for the presence of chloride.—Apoth. Ztg., Berl., 1909, v. 24, pp. 726–727.

Arny, H. V., reports eight samples of potassium bromide examined, which were up to the requirements of the U. S. P. VIII.—Proc. Ohio Pharm. Ass., 1909, p. 67.

Dunn, John A., suggests formulas for granular effervescent potassium bromide N. F., and granular effervescent potassium bromide with caffeine N. F.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 956.

v. Wyss, H. (Med. Klin. Berl., 1908, v. 4, No. 47) discusses the experimental basis for the use of the bromides. Bromism he considers to be merely the sum of the disturbances in cell metabolism resulting from long continued deficiency in chlorine.—J. Am. M. Ass., 1909, v. 52, p. 258.

Ellingwood, Finley, asserts that potassium bromide is an active muscular sedative, as well as a nerve sedative. It suspends the action of the muscular structures by a direct action on the contractile power of the muscle.—Eclectic Rev., 1909, v. 12, p. 18.

Rebizzi contributes a note on and a formula for the hypodermic use of potassium bromide.—Rev. Med. Cir. Habana, 1909, v. 14, p. 327.

An editorial note (*Critic and Guide*, 1909, v. 12, p. 106) asserts that potassium bromide is the most toxic of all bromides and at the same time the least hypnotic.

An editorial (*Therap. Gaz.*, 1909, v. 33, p. 866) points out that Dixon states that potash salts are usually regarded as depressant to all living tissues, and that it is the custom of some practitioners to use sodium bromide instead of potassium bromide in order to avoid the depressant effect of the potash base. This he believes to be futile. He admits that the potash salts given in large quantity, intravenously, are depressing, but claims that they are so slowly absorbed from the stomach and so rapidly eliminated that a sufficient quantity of potash is never present in the blood at any one time to produce depression.

Stephens, A. F., asserts that potassium bromide is curative in cases of pertussis when the patient shows a tendency to laryngeal spasm or general convulsions, or is nervous, sleeps poorly, is irritable, and when the disease is worse at night.—*Nat. Eclect. Med. Ass. Quart.*, 1909-10, v. 1, p. 126.

Additional references on the pharmacology and uses of potassium bromide will be found in *Index Medicus* and *J. Am. M. Ass.*

#### POTASSII CARBONAS.

Havenhill, L. D., points out that potassium carbonate is a deliquescent salt which does not appear to have been considered in the prefatory remarks of the U. S. P., since it can contain a very large amount of water of hydration, and still be in a state of sensible dryness. The allowable loss at 130° C. should be limited.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 800.

Schamelhout, A., states that the French neutral potassium carbonate should contain at least 90 per cent of anhydrous carbonate; the Belgian salt should contain at least 95 per cent.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 74.

Bachman, Gustave, reports that in the potassium carbonate examined he found a minimum of 95.83 per cent and a maximum of 97.44 per cent.—*Proc. Minnesota Pharm. Ass.*, 1909, p. 70.

Patch, E. L., reports potassium carbonate 98.3 to 98.52 per cent pure; one lot contained 0.4 per cent KCl.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 738.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 44) give a comparison between samples of pearl ash from various sources. The German contains more sodium than the others.

Dohme and Engelhardt rejected two shipments of calcined potassium carbonate, because of pronounced color, and assaying only 90 per cent of potassium carbonate.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 717.

## POTASSII CHLORAS.

A committee of the Syndicat général de la Droguerie française asks that the weight of chlorides to be tolerated in potassium chlorate be fixed.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 289.

Dohme and Engelhardt report an examination of potassium chlorate and conclude that the chloro-oxy compound which Gartenmeister suspects in potassium chlorate and potassium bromate, as claimed by Klopstock, is present usually in such small amount as not to render the salt dangerous.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 847–851. See also Am. J. Pharm., Phila., 1909, v. 81, p. 436.

Klopstock, H., reports that the active substance in potassium chlorate made at the Aussig works was found to be not chlorite at all but potassium bromate. Sodium chlorate produced electrolytically did not show any activity.—Chem. Ztg., 1909, v. 33, p. 21.

Gartenmeister, R., in a French patent specification, discusses the purification of chlorates manufactured electrochemically.—J. Soc. Chem. Ind., 1909, v. 28, p. 21.

Pieszczyk, Ernst, reports finding bromine in 5 samples of potassium chlorate, one sample containing as much as 0.26 per cent potassium bromate.—Pharm. Ztg., Berl., 1909, v. 54, p. 325.

Virgili, Juan Fages, discusses the determination of chlorates by colorimetric methods and reports a number of analytical results.—Ann. d. chim. analyt., Par., 1909, v. 14, pp. 85–91.

Davis, George C., reports on several unusual cases of chlorate explosion.—J. Ind. Eng. Chem., 1909, v. 1, p. 118.

Girard and Laroche describe various explosives containing chlorates and perchlorates; also describe the physical and chemical characteristics of the potassium and sodium salts of chloric and perchloric acids.—Monit. Scientif., 1909, v. 70, pp. 217–252.

Dohme and Engelhardt think that all electrolytic potassium chlorate should be recrystallized before being offered for sale.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 717.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 46) report from 4 to 8 parts per million of arsenic in 4 of 10 samples of potassium chlorate examined; 2 samples contained lead 40 parts per million, and 1, 50 parts. Traces of chloride were also occasionally met with.

The Belgian inspectors of pharmacies report potassium chlorate sometimes contaminated by chloride, which makes it hygroscopic.—J. d. pharm. d'Anvers, 1909, v. 65, p. 587. See also Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 259.

Barton, Wilfred M., asserts that the internal administration of potassium chlorate is objectionable because it is both toxic and valueless. Its local action in the mouth is a simple salt action which may be

imitated by other salts such as the chlorides, nitrates, and bromides.—*J. Am. M. Ass.*, 1909, v. 52, p. 1560.

Virgili, Juan Fages, reports researches on the toxicology of chlorates.—*Ann. d. chim. analyt., Par.*, 1909, v. 14, pp. 289-294.

#### POTASSII CITRAS.

Sayre and Zieffe report one sample of potassium citrate examined, which was below standard.—*Bull. Kansas Bd. Health*, 1909, v. 5, D. A., pp. 16-23.

Dunn, John A., asserts that the U. S. P. formula for effervescent potassium citrate gives a product which does not keep. He finds it necessary to keep out the tartaric acid entirely and uses a small amount of sugar to give a little hardness to the granule. He presents a working formula for the preparation so modified.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 946.

White, Robert C., presents an improved formula for granular effervescent potassium citrate in which he suggests reversing the amounts of the acids used.—*Drug. Circ., N. Y.*, 1909, v. 53, p. 621.

#### POTASSII CYANIDUM.

A committee of the *Syndicat général de la Droguerie française* asks that traces of sulphides and of soda be tolerated in potassium cyanide.—*Bull. sc. pharmacol., Par.*, 1909, v. 16, p. 289.

Chio (*Archiv. d. farmacol.*, 1908, v. 14, No. 3) discusses poisoning by potassium cyanide and the action of potassium cyanide on certain fermentation processes of the organism.—*Nouv. remèdes, Par.*, 1909, v. 25, p. 84.

Sargeant, F, Pilkington, asserts that potassium cyanide is used for the destruction of wasps and for the generation of hydrocyanic acid for fumigating purposes. It should be of 98 per cent strength. Sodium cyanide is better for all purposes, and it is cheaper.—*Pharm. J., Lond.*, 1909, v. 29 (83), p. 237.

#### POTASSII DICHROMAS.

Gemmill, Wm., reports a case of rodent ulcer in a woman aged 82, successfully treated by potassium bichromate.—*Brit. M. J.*, 1909, v. 2, p. 1225.

Fenwick, James, reports a number of cases of cancer successfully treated by the use of injections of potassium bichromate into the substance of the tumor. The dose used is from 7 to 10 minims of a sublimate solution. In some cases 15 minims are injected.—*Ibid.*, 1909, v. 1, pp. 589-591.

**POTASSII ET SODII TARTRAS.**

Bachman, Gustave, found potassium and sodium tartrate 96.32, 98.9 per cent pure.—*Proc. Minnesota Pharm. Ass.*, 1909, p. 70.

Dunlap, Renick W., reports 2 samples of Rochelle salts examined, not passed.—*Rep. Ohio Dairy & Food Com.*, 1909, p. 60.

Evans Sons Lescher & Webb (Analytical Notes 1909, p. 52) report on 28 samples of sodium potassium tartrate, in only 2 cases was arsenic found as high as 4 parts per million. Faint traces of calcium and iron were noted in a few samples.

**POTASSII FERROCYANIDUM.**

Petrie, C., in a French patent specification, outlines the manufacture of potassium ferrocyanide from sodium ferrocyanide and potassium chloride.—*J. Soc. Chem. Ind.*, 1909, v. 28, p. 22.

**POTASSII HYDROXIDUM.**

Thackara, A. M., discusses the German potash industry and presents a table showing the amount in value of the potash salts produced.—*Chem. Eng.*, 1909, v. 10, pp. 152-155.

Schamelhout, A., states that the French product contains 90 per cent potassium hydroxide; the Belgian 85 per cent.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 74.

A committee of the *Syndicat général de la Droguerie française* asks that the presence of traces of chlorine and of iron be tolerated in potassium hydroxide.—*Bull. sc. pharmacol., Par.*, 1909, v. 16, p. 289.

Merck, E. (Darmstadt), thinks the Ph. Fr. requirement of 90 per cent KOH too high. The pure potassium hydroxide of commerce, he says, contains at most only 87 per cent (with phenolphthalein as an indicator). The industrial production of a higher percentage is a matter of very great inconvenience. The receptacles used are strongly attacked by potassium hydrate of high percentage and the product contains impurities due to the materials of these receptacles. Ph. Belg. III and U. S. P. VIII require only 85 per cent, while Ph. Helv. IV requires but 80 per cent.—*Ibid.*, p. 552.

Henderson, H. John, discusses the nature of potassium hydroxide (purified by alcohol), which on examination was found to contain but 82.1 per cent of KOH.—*Pharm. J., Lond.*, 1909, v. 29 (83), p. 564.

Collitt, Bernard, reports his experience with potassium hydroxide, and asserts that it is very seldom that one can make a seminormal solution of potash by dissolving 30 gm. of the hydrate (in sticks) in a liter, as directed by several text-books.—*Ibid.*, 1909, v. 29 (83) p. 693.

Scoville, W. L., reports caustic potash 81.6 to 90.08 per cent pure.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 738.

Bachman, Gustave, reports potassium hydroxide 83.3 to 86.32 per cent pure.—Proc. Minnesota Pharm. Ass., 1909, p. 70.

Sargeant, F. Pilkington, asserts that potassium hydroxide is recommended as an ingredient in winter washes by many writers, but as it is no more effective than caustic soda, there is no reason why it should be used, since the latter is much cheaper.—Pharm. J., Lond., 1909, v. 29 (83), p. 237.

### POTASSII IODIDUM.

A committee of Section III, Second International Congress for the Suppression of Adulterations (Paris, 1909) recommends that potassium iodide contain at least 97 per cent pure KI.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 426.

Merck, E. (Darmstadt), notes that while the Ph. Fr. V states that the proportion of free alkali or carbonate should not exceed 1 per cent, the admissible alkali content should be considerably lowered; a good product is practically free from alkali.—*Ibid.*, p. 552.

Schamelhout, A., commenting on the description of potassium iodide proposed by Section III of the Second International Congress for the Suppression of Adulterations, says this drug might be considered officinal. The Ph. Belg. III does not tolerate the presence of carbonate.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 183.

Umney, J. C., points out that the purity requirement for potassium iodide is 97 per cent, while that of the Ph. Brit. is 98 per cent and the U. S. P. is 99 per cent; a reduction of percentage which is certainly not warranted or necessary.—Chem. & Drug., 1909, v. 75, p. 581.

Kahn, Joseph, points out that potassium iodide does not always conform to the pharmacopœial test for the limit of iodate, the presence of which he believes to be due to the imperfection in the first stage of manufacture.—Am. Druggist, N. Y., 1909, v. 55, p. 6. See also Proc. New York Pharm. Ass., 1909, p. 262.

Andrews, Launcelot W., discusses the fallacy of the widespread belief that commercial potassium iodide frequently contains iodate.—J. Am. Chem. Soc., 1909, v. 31, pp. 1035–1039.

Rupp and Pfenning outline a method for the acidimetric estimation of potassium iodide, using hydrochloric acid and mercuric cyanide as reagents.—Arch. d. Pharm., 1909, v. 247, pp. 108–110.

Schmidt and Jones, in a report of experiments on conductivity and viscosity in mixed solvents containing glycerol, discuss the conductivities of potassium iodide in glycerol and in mixed solvents.—Am. Chem. J., 1909, v. 42, p. 84.

Paal and Zahn report observations on colloidal potassium iodide.—Ber. d. deutsch. chem. Gesellsch., Berl., 1909, v. 42, p. 299.

Bachman, Gustave, reports that in the potassium iodide examined he found 96.82 per cent minimum and 99.05 per cent maximum.—Proc. Minnesota Pharm. Ass., 1909, p. 70.

The Belgium inspectors of pharmacies report potassium iodide sometimes notably alkaline.—J. d. pharm. d'Anvers., 1909, v. 53, p. 259.

Schamelhout, A., says that the pharmacist should look carefully to the purity of this product, lest the physician prescribe it in the form of a specialty.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 259.

Caldwell, Paul, reports that ointment of potassium iodide should be dropped for want of sufficient recognition. Moreover, the addition of potassium carbonate has not assisted in preserving this ointment.—Bull. Pharm., 1909, v. 23, p. 117.

Mittelbach, William, asserts that the formula for ointment of potassium iodide is very good.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 817.

Capps, Pratt, McCrae, and Halsey recommend the deletion of unguentum potassii iodidi from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

Barton, Wilfred M., asserts that the real indication for potassium iodide in scleroses is syphilis. In the absence of this it is without value.—J. Am. M. Ass., 1909, v. 52, p. 1560.

Howes, Pitts Edwin, gives potassium iodide in chronic rheumatism where there is enlargement of the glands in various parts of the body with a pale leaden-colored tongue.—J. Therap. & Diete., Boston, 1908-9, v. 3, p. 217.

Galli-Valerio and Rochaz report a case of actinomyces in man which was successfully treated with potassium iodide.—Therap. Monatsh., Berl., 1909, v. 23, pp. 25-27.

Brown, Alexander G., discusses the use of potassium iodide in the therapeutic management of arteriosclerosis.—Tr. Am. M. Ass., Sec. Pharm. and Therap., 1909, p. 29.

Dock, George, discusses the advantage of using potassium iodide until we have something better. Potassium iodide can be taken easily and safely and in adequate quantities by most patients who need it.—J. Am. M. Ass., 1909, v. 53, p. 1607. See also Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, pp. 75-80.

Earp (N. Y. Med. J.) asserts that potassium iodide may be given in milk to improve the palatability, and this also prevents gastric irritation.—Meyer Bros. Drug., St. Louis, 1909, v. 30, p. 117.

Additional references on the chemistry, pharmacology, and uses of potassium iodide will be found in Chem Abstr. Am. Chem. Soc., Index Medicus, and J. Am. M. Ass.



**POTASSII NITRAS.**

Kremann and Zitek report experimental results on the formation of conversion saltpeter out of sodium nitrate and potash from the standpoint of the phase rule.—*Monatsh. f. Chem., Wien*, 1909, v. 30, pp. 311-340.

Bernthsen, A., discusses the utilization of atmospheric nitrogen, particularly for the manufacture of air saltpeter.—*J. Ind. Eng. Chem.* 1909, v. 1, pp. 466-475.

Kleiber, Alb., discusses the estimation of nitrogen in potassium nitrate by means of zinc chloride and iron filings.—*Chem. Ztg., Cöthen*, 1909, v. 33, pp. 479-480.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 46) report that more than 3 parts per million of arsenic was detected in 3 of the 30 samples examined, the largest being 10 parts per million. A small amount of chloride was found in the crystal variety.

Howes, Pitts Edwin, recommends potassium nitrate for cases of acute rheumatism where there is excessive tenderness combined with scantiness of the urine and renal torpidity.—*J. Therap. & Dietet., Boston*, 1908-9, v. 3, p. 217.

**POTASSII PERMANGANAS.**

Herschkowitsch, M., discusses the oxidation of ammonia by potassium permanganate and the influence of ammonium salts on the same.—*Ztschr. f. physik. Chem.*, 1908-9, v. 65, pp. 93-96.

Pearson, W. A., found samples of potassium permanganate which contained nitrates, chlorides, sulphates, and were low in strength.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 181.

Weiss, Ludwig, calls attention to the use of potassium permanganate in hyperidrosis pedum. He believes that this remedy deserves to be better known and more frequently used in this disagreeable and obtrusive trouble.—*Critic & Guide*, 1909, v. 12, p. 32.

Burnett, J. A., asserts that a saturated solution of potassium permanganate is a valuable local application for rhus poisoning and is far superior to ordinary remedies used for this purpose.—*Eclectic M. J., Cincin.*, 1909, v. 69, p. 189.

Harbert, J. P., asserts that potassium permanganate is used as a cleansing wash in purulent ophthalmia, and for disinfecting the skin and conjunctiva preparatory to operative work. It may be used freely in the strength of 4 grains to the pint.—*Eclectic M. J., Cincin.*, 1909, v. 69, p. 530.

Sargeant, F. Pilkington, asserts that potassium permanganate is used as a fungicide in the treatment of certain diseases of vines and roses. It is also used as a poultry tonic.—*Pharm. J., Lond.*, 1909, v. 29 (83), p. 237. Also *Drug Topics*, New York, 1909, v. 24, p. 356.

## POTASSII SULPHAS.

A committee of the Syndicat général de la Droguerie française asks that traces of chloride be tolerated in potassium sulphate.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 289.

## PRUNUS VIRGINIANA.

Henkel, Alice, points out that for many years the U. S. P. has adhered to the pharmacopœial name "*Prunus virginiana*" for wild cherry, although for 30 years it has acknowledged *Prunus serotina* as the botanical source. She discusses the origin of the several names and points out that Ehrhart (Beitr. z. Naturk. 3, p. 20, 1788) first distinguished between the two and gave to the wild black cherry the name *Prunus serotina*, which has long been the accepted name, and to retain the pharmacopœial designation "*Prunus virginiana*" is misleading.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 766.

Greenish, Henry G., discusses the pronunciation of *serotina*. He points out that *serotina* is not an English but a Latin word, and is certainly therefore not amenable to the rules and laws that govern the King's English.—Pharm. J., Lond., 1909, v. 28 (82), p. 315.

"A Casual Writer" commenting on the criticism made by Greenish on the pronunciation of *serotina* does not admit that technical terminology is Latin in the true sense of the word.—*Ibid.*, 1909, v. 28 (82), pp. 346-347.

Henkel, Alice, presents a description with an illustration of *P. serotina* Ehrh., gives the pharmacopœial name, synonym, and common names, discusses its habitat and range, describes the tree and bark, and discusses its collection, prices, and uses.—Bul. Bur. Plant Ind., U. S. Dept. Agric., 1909, No. 139, pp. 30-31.

Holm, Theo., describes and illustrates the structural characteristics of *P. serotina* Ehrh.; also describes and figures the internal structure of the bark, the root, and the leaf.—Merck's Rep., 1909, v. 18, pp. 287-290.

Rusby, H. H., thinks that the description of *prunus virginiana* should be improved so as to exclude the bark of all related species.—Pharm. Era, 1909, v. 42, p. 635. See also Midl. Drug., 1909, v. 43, p. 691.

Moser, John, points out that collectors frequently mistake *P. virginiana* L. or choke cherry for *P. serotina* Ehrh. or black cherry, which is the official source of wild cherry bark. He presents a description of the two trees and of the characteristic features of their bark.—Am. J. Pharm., Phila., 1909, v. 81, p. 579.

Finnemore, Horace, comments on spurious cherry bark and describes an adulteration recently met with.—Pharm. J., Lond., 1909, v. 28 (82), pp. 191-192.

Holmes, E. M., describes with illustrations the structural characteristics of the spurious cherry bark referred to by Finnemore. He also illustrates the structural characteristics of *P. serotina* and *P. emarginata* and calls attention to the difficulty in identifying even the genuine bark because of the fact that 3 or 4 forms of the official drug occur on the market.—*Ibid.*, pp. 192–194.

Pearson, W. A., received one shipment of wild cherry which was greatly inferior to trial sample submitted. Only the thin bark should be used.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 181.

Power and Moore report experiments to determine the constituents of the bark of *P. serotina*, and the isolation of l-mandelonitrile glucoside.—*Chem. News, Lond.*, 1909, v. 99, p. 91. See also *J. Chem. Soc., Lond.*, 1909, v. 95, pp. 243–261.

Weimar, Henry, contributes a paper on wild cherry bark, giving the results of his efforts to extract the active principle.—*Proc. Arkansas Pharm. Ass.*, 1909, pp. 67–71.

Schimmel & Co. (Semi-Annual Report, October, 1909, p. 127) call attention to reported experiments in the production of oil of wild cherry bark, and review the literature relating thereto.

Fussell, M. H., in recommending its deletion from the Pharmacopœia, asserts that infusion of wild cherry is so seldom used, save by the laity, that it seems useless to recommend it.—*Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, p. 204.

Nixon, C. F., asserts that freshly ground wild cherry bark should be used in the making of sirup of wild cherry, if the best results are wanted.—*Apothecary*, 1909, v. 21, April, p. 18. See also *Proc. Massachusetts Pharm. Ass.*, 1909, p. 127.

Beringer and Beringer suggest a modification of the official method for the preparation of sirup of wild cherry and call attention to an error in the quantities given in the formula of the U. S. P.—*Proc. New Jersey Pharm. Ass.*, 1909, p. 92. See also *Am. J. Pharm. Phila.*, 1909, v. 81, pp. 316–317.

Hallaway, Robert R., discusses the making of sirup of wild cherry, and comments on the formulas proposed by Beringer, Cline, and others.—*Pharm. J., Lond.*, 1909, v. 29 (83), pp. 798–800. See also *Brit. & Col. Drug.*, 1909, v. 56, pp. 531–532.

Hill, Edward C., reports three samples of sirup of wild cherry examined, all of which were fermented and one was mouldy.—*Bull. Colorado Bd. Health*, 1909, v. 9, no. 1, p. 2.

Umney, J. C., calls attention to the precipitation of alkaloids with some sirups of Virginia prune. He points out that the difficulty can be overcome, or to some extent obviated, by the selection of a bark containing a minimum of tannin.—*Brit. & Col. Drug.*, 1909, v. 56, p. 532. Also *Pharm. J., Lond.*, 1909, v. 29 (83), p. 800.

Diehl, C. L., reports from the committee on N. F. recommending the reduction of the amount of sugar in wine of wild cherry N. F. to 100 gm. and addition of 100 gm. of glycerin.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1093.

#### **PULVERES.**

Diehl, C. L., reports from the committee on N. F. recommending the deletion of the general directions for "Pulveres."—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1083.

Weills, Issac M., describes and illustrates a homemade powder mixer.—Merck's Rep., 1909, v. 18, p. 11.

Schamelhout, A., states that the Ph. Fr. V mentions 4 screens and 7 sieves for the preparation of powders; the Ph. Belg. III indicates only 3 screens and 4 sieves.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 75.

#### **PULVIS ACACIÆ COMPOSITUS.**

Posey, H. G., asserts that compound powder of acacia is not Pulvis Gummosus Ph. Germ. unless the quantities of licorice and sugar be changed to correspond with that authority.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 993.

#### **PULVIS ACETANILIDI COMPOSITUS.**

Capps, Pratt, McCrae, and Halsey recommend the deletion from the U. S. P. of pulvis acetanilidi compositus, as there does not seem to be any reason for retaining it.—J. Am. M. Ass., 1909, v. 53, p. 792.

Fussell, M. H., thinks that compound acetanilide powder should be relegated to the National Formulary, or preferably dropped entirely because of its being a palpable imitation of a widely advertised nostrum.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 206.

See also under Acetanilidum.

#### **PULVIS ANTICATARRHALIS N. F.**

Posey, H. G., thinks that catarrh powder N. F. should be dropped.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 993.

Hilton, Samuel L., asserts that catarrh powder is a very dangerous preparation, for it contains a habit-forming drug in considerable quantity. This formula should be eliminated in the next revision. There is no justification in retaining a preparation of this kind, which has never demonstrated its utility.—Pharm. Era, 1909, v. 41, p. 254.

Diehl, C. L., reports from the committee on N. F. recommending a change in title to "Insufflatio Bismuthi et Morphinae."—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1083.

## PULVIS ANTISEPTICUS N. F.

Hilton, Samuel L., thinks that the formula for antiseptic powder should be reconstructed. Powdered dried zinc sulphate should be used in place of the granular salt of the Pharmacopœia, due allowance being made for loss of water in drying the zinc salt.—Pharm. Era, 1909, v. 41, p. 254.

## PULVIS CATECHU COMPOSITUS N. F.

Eliel, Leo, thinks that the title of compound powder of catechu should be "Pulv. Gambir Comp."—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1084.

Diehl, C. L., reports from the committee on N. F. recommending the reconstruction of the text and omission. A subcommittee recommends modification of formula or deletion.—*Ibid.*, p. 1084.

## PULVIS CRETÆ AROMATICUS N. F.

Posey, H. G., asserts that if aromatic powder of chalk N. F. is to be retained the formula should be reconciled to that of the Ph. Brit., or the footnote omitted.—*Ibid.*, p. 993.

Diehl, C. L., reports from the committee on N. F. recommending the elimination of saffron and omission of note. The formula should be modified or dropped.—*Ibid.*, 1909, v. 57, p. 1084.

## PULVIS CRETÆ AROMATICUS CUM OPIO N. F.

Diehl, C. L., reports from the committee on N. F., recommending the omission of the note.—*Ibid.*, p. 1084.

## PULVIS EFFERVESCENS COMPOSITUS.

The examination of drug samples in 1907 showed that, of 122 samples of Seidlitz powder examined, 5 were found adulterated or not up to standard.—Pharm. J., Lond., 1909, v. 28 (82), p. 182.

Gane, E. H., reports 3 lots of Seidlitz mixture containing 23.36 to 28.6 per cent sodium bicarbonate.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 738.

Wetterstroem, Theo. D., reports a sample of Seidlitz powders; the Rochelle salts and bicarbonate of sodium mixture was 10 per cent short in weight.—Proc. Ohio Pharm. Ass., 1909, p. 63.

## PULVIS IODOFORMI COMPOSITUS N. F.

Diehl, C. L., reports from the committee on N. F. recommending the modification or omission of the formula for compound powder of iodoform.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1084.

**PULVIS IPECUANHÆ ET OPII.**

Schamelhout, A., notes that the Ph. Fr. V replaces the sugar of milk by a mixture of equal parts of potassium nitrate and sulphate.—Bull. Soc. roy d. pharm., Brux., 1909, v. 53, p. 75. See also under "Opium."

**PULVIS KINO COMPOSITUS N. F.**

Diehl, C. L., reports from the committee on N. F. the recommendation to eliminate the note. A change in title to "Pulvis Kino et Opii" is also recommended.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1084.

**PULVIS MYRICÆ COMPOSITUS N. F.**

Diehl, C. L., reports from the committee on N. F. recommending the modification or dropping of the formula for compound powder of bayberry.—*Ibid.*, p. 1084.

**PULVIS PANCREATICUS COMPOSITUS N. F.**

Diehl, C. L., reports from the committee on N. F. recommending the elimination of the last paragraph of the note to compound pancreatic powder.—*Ibid.*, p. 1084. See also under "Pancreatinum."

**PULVIS PEPSINI COMPOSITUS N. F.**

Beringer, Geo. M., in discussing the compound powder of pepsin, and the compound elixir of pepsin of the National Formulary, calls attention to the differences existing in their composition, and favors the introduction of formulas maintaining a proportionate equivalent of the ingredients used in the two preparations.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 185.

Diehl, C. L., reports from the committee on N. F. the recommendation to use 1.5 gm. of pepsin instead of saccharated pepsin.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1084.

See also under "Pepsinum."

**PULVIS PRO LACTE HUMANISATO N. F.**

Diehl, C. L., reports from the committee on N. F. the recommendation to dismiss humanizing milk powder.—*Ibid.*, p. 1084.

**PULVIS RHEI ET MAGNESIÆ ANISATUS N. F.**

Hilton, Samuel L., expresses the belief that compound anise powder is by no means a proper name for a mixture of rhubarb and heavy magnesia that contains but a small amount of oil of anise that

is added only for flavoring. It has little if any medicinal effect and certainly there is no justification in continuing the use of this name, the word anise according to the Pharmacopœia means the seed.—Pharm. Era, 1909, v. 41, p. 253.

#### PULVIS TALCI SALICYLICUS N. F.

Diehl, C. L., reports from the committee on N. F. recommending that the formula for salicylated powder of talcum be modified or dropped. The elimination of the note is also recommended.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1084.

#### PYRETHRUM.

Cook, E. Fullerton, reports that the formula for tincture of pyrethrum is entirely satisfactory.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1003.

#### PYROGALLOL.

Carletti, Ottorino, contributes a note on a reaction of pyrogallol.—Boll. chim. farm. Milan, 1909, v. 48, p. 441.

Merck, E. (Darmstadt), states that while the Ph. Fr. V describes the aqueous solution of pyrogallol as neutral to color reactions, he finds that it always gives a reaction weakly acid to litmus. He cites Ph. Helv. IV, Ph. Svec. IX, and E. Merck, *Jahresbericht*, 1909.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 552.

Pougnat (Rép. d. pharm., 1909, p. 265), in a discussion of the color reactions of phenols with formaldehyde sulphuric acid, points out that pyrogallol gives a precipitate of wine lees color.—Merck's Rep., 1909, v. 18, p. 272.

Veiel, F. V. (Berl. klin. Woch.), makes a contribution to the study of the treatment of lupus vulgaris by pyrogallol. While not always successful, he is convinced that the method is valuable.—Nouv. remèdes., Par., 1909, v. 25, p. 20.

#### PYROXYLINUM.

Hake and Bell discuss the action of sulphuric and nitric acids in the nitration of cellulose.—J. Soc. Chem. Ind., 1909, v. 28, p. 823.

Sapojenikow, A. W., discusses the theory of nitration of cellulose.—Proc. VIIth Internat. Congress App. Chem., Sec. IIb, Explosives, 1909, Lond., 1910, pp. 38-46.

Piest, C., reports a comprehensive study on the nitration of cotton and the examination of the commercially available nitrocellulose.—Ztschr. f. ang. Chem., 1909, v. 22, pp. 1215-1224.

Nathan, Frederic L., discusses guncotton and its manufacture, and points out that guncotton was discovered in 1846 by Christian Friedrich Schönbein at Basle, but it was not until 40 years later that it

fulfilled his expectations.—J. Soc. Chem. Ind., 1909, v. 28, pp. 177–185. See also Chem. News, Lond., 1909, v. 99, pp. 136–138; 152–153; 159–160.

Brown, Geo. S., presents some observations on the manufacture of pyroxylin and calls attention to the fact that the U. S. P. VIII gives no working formula for its manufacture. He sees no reason why every pharmacist should not make it in his own laboratory.—Proc. Louisiana Pharm. Ass., 1909, pp. 66–69.

The Belgian inspectors of pharmacies report pyroxylin sometimes poorly prepared, not dissolving in ether; sometimes poorly washed, acid; sometimes also decomposed, disengaging nitric oxide.—J. d. pharm. d'Anvers, 1909, v. 65, p. 588.

Schamelhout, A., notes that this product should be soluble in a mixture of ether and alcohol.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 259.

#### QUASSIA.

Schamelhout, A., states that in the Ph. Fr. V it is the wood of Jamaica quassia which is officinal; in Belgium the wood of Surinam quassia is also officinal.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 75.

The Belgian inspectors of pharmacies report that the dry extract of quassia is sometimes defective. At other times it is poorly kept in ordinary bottles, and altered by humidity.—J. d. pharm. d'Anvers, 1909, v. 65, p. 627. See also Bull. Soc. roy. d. phar., Brux., 1909, v. 53, p. 270.

Caldwell, Paul, thinks that fluid extract of quassia can be dropped for the reason that the tincture is used instead.—Bull. Pharm., 1909, v. 23, p. 115.

Cook, E. Fullerton, reports that tincture of quassia, after standing about 9 months, develops a small amount of precipitate, which, on shaking the bottle, readily mixes with the liquid.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1003.

Heubner and Rieder in a discussion on the influence of bitter principles report observations on the influence of quassin in delaying the toxic action of strychnine.—Therap. Monatsh. Berl., 1909, v. 23, pp. 310–313.

Sargeant, F. Pilkington, asserts that quassia, the wood of *Picrasma excelsa*, is used in the form of infusion for the destruction of aphides. Extract of quassia U. S. P. is a convenient concentrated form of this.—Pharm. J. Lond., 1909, v. 29 (83), p. 237. Also Drug Topics, New York, 1909, v. 24, p. 356.

#### QUERCUS.

Henkel, Alice, presents a description with illustrations of *Quercus alba* L., gives the pharmacopœial name and the common names, dis-



cusses the habitat and range, describes the tree and the bark and discusses its collection, prices, and uses.—Bull. Bur. Plant Ind., U. S. Dept. Agric., 1909, No. 139, pp. 18-20.

#### QUILLAJA.

"Micron" describes and illustrates several new varieties of soap bark.—Chem. & Drug., Lond., 1909, v. 75, p. 443.

Rusby, H. H., asserts that it is probable that several species of quillaja are imported, and their resemblance is so close that they can not be differentiated. It is requisite that some botanist should collect authentic material for study.—Pharm. Era, 1909, v. 42, p. 635. See also Midl. Drug., 1909, v. 43, p. 691.

Capps, Pratt, McCrae, and Halsey recommend the deletion of quillaja and fluidextractum quillajæ and tinctura quillajæ from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

Cook, E. Fullerton, reports that tincture of quillaja forms considerable precipitate of a dark brown color, that separates into masses not easily shaken up with the liquid.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1003.

#### QUININA.

Roeder, Georg, reports a visit to the cinchona cultivations in India and discusses the production, distribution and use of quinine by natives. He asserts that practically all of the cinchona grown in India is used in that country for the production of quinine and that all of the quinine produced, with an additional amount produced from cinchona imported from Java, is distributed, largely through the Post Office Department, to the natives in India itself.—Tropenflanzer, 1909, v. 13, pp. 473-477.

Goldsmith, E., in an article entitled some notes on quinine and its associated alkaloids, presents a number of personal reminiscences in connection with the production of quinine and other alkaloids of cinchona.—J. Frankl. Inst., 1909, v. 167, pp. 90-98.

Gehe & Co. (Handelsbericht, 1909, pp. 118-120) discuss the economic conditions of the quinine market, and point out that the speculative interest formerly manifested in this drug has entirely disappeared. They present tables showing the annual consumption of quinine in recent years, the average price obtained for the drug, and the amount of bark sold in Java.

Riedel's Berichte (Berlin, 1909, p. xxxix) presents a monograph on quinine including properties and chemical tests. The melting point is given as initially 57°. On further heating the substance, because of loss of water, again becomes solid, and then melts at 175° C.

Mittelbach, Wm., says that since quinine and its several salts are so cheap, it might be well to dismiss from the Pharmacopœia the other alkaloids of cinchona, known to be of inferior and lesser medicinal qualities.—Proc. Missouri Pharm. Ass., 1909, p. 110.

Dambergis and Konnenos report on the official testing of quinine, and preparations of quinine, imported into Greece.—Pharm. Post., Wien, 1909, v. 42, pp. 277-279.

Luther and Forbes report a quantitative study of the photochemical reaction between quinine and chromic acid.—J. Am. Chem. Soc., 1909, v. 31, pp. 770-783.

Tutin, Frank, discusses the tests for purity of quinine salts, and points out that the ammonia test is limited in its application.—Pharm. J., Lond., 1909, v. 29 (83), pp. 600-603.

Howard, Howard, and Chick present a comparison of some official tests of quinine sulphate, and call attention to the variation existing in the requirements for Kerner's test in the different national pharmacopœias.—Proc. VIIth Internat. Congress App. Chem., Sec. VIIIb, Pharmacy, 1909, London, 1910, pp. 98-103. See also Pharm. J., Lond., 1909, v. 28 (82), p. 868, and Chem. & Drug., Lond., 1909, v. 74, p. 880.

Vaudin, L., presents a brief note on the assay of quinine sulphate calling attention to the economics of the new method of the Ph. Fr., V.—J. d. pharm. et d. chim., Par., 1909, v. 29, p. 60.

Elvove, Elias, in a report on the fixing power of alkaloids on volatile acids, and its application to the estimation of alkaloids with the aid of phenolphthalein or by the Volhard method, discusses the estimation of quinine and reports a number of experimental results.—Bull. Hyg. Lab. U. S. P. H. & M.-H. S., 1909, No. 54, p. 15.

van Zijp, C., discusses the polarimetric estimation of quinine.—Pharm. Weekblad, 1909, v. 46, pp. 1018-1027.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 47) report one consignment of quinine which yielded 74.9 per cent anhydrous quinine.

Lenz, W., presents observations on the estimation of quinine in pills.—Pharm. Zentralh., 1909, v. 50, p. 635. See also Apoth. Ztg., Berl., 1909, v. 24, pp. 366-367.

Stannus, Hugh S., condemns sugar-coated tablets of quinine, and thinks only such salts as are easily soluble in water should be made up in these forms.—Lancet, 1909, v. 177, p. 1027.

Mittelbach, William, asserts that the formula for oleate of quinine is ideal.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 816.

Earp (N. Y. Med. J.) asserts that quinine is hard to disguise. The preferable method is to give 1 grain of tannic acid to each 3 grains of quinine in a vehicle of sirup of tolu.—Meyer Bros. Drug., St. Louis, 1909, v. 30, p. 117.

Lewin, L., reports observations on the influence of quinine on the coloring matter of the blood.—Arch. f. exper. Path. u. Pharmacol., Leipz., 1908-9, v. 60, pp. 324-327.

An editorial (Chem. & Drug., Lond., 1909, v. 75, pp. 645-646) discusses the distribution and use of quinine in India.

Ziemann, Hans, discusses the method of using quinine in malaria.—Folia Therap., Lond., 1909, v. 3, pp. 14-16.

Osler, William, asserts that the use of quinine has greatly decreased the mortality from malaria, and quotes from the decennial report of the Italian Society for the Study of Malaria, which has just been issued, to show the possibilities of prophylaxis.—Chem. & Drug., Lond., 1909, v. 74, p. 533.

An India correspondent (Lancet, 1909, v. 176, p. 1868) reports that the educational department has cooperated with the inspector general of civil hospitals in the Punjab in popularizing the use of quinine, with the result that the sales of 1908 have far exceeded those of previous years.

Widener, A. J., states that quinine, the great antidote for all forms of malaria, has long since been discarded in malarial hæmaturia, or any other malarial attack where the urine is of a coffee or high color.—Nat. Eclect. Med. Ass. Quart., 1909-10, v. 1, p. 130.

An abstract outlines the life history of the organism producing malaria, and discusses the influence of quinine on its development.—Drug Topics, New York, 1909, v. 24, p. 296.

Keown, J. A., discusses the treatment of pneumonia, with special reference to the use of quinine, and gives notes of 15 cases.—N. York M. J., 1909, v. 89, pp. 1186-1189.

Booth, B. H., advocates the hypodermic use of quinine, especially in treating children. While any soluble salt may be used, he prefers the bimuriate. Further details are given in the abstract.—J. Am. M. Ass., 1909, v. 52, p. 1688.

Safford, A. H., referring to a contribution by G. W. Young, notes that the injection method is fully described in Manson's Tropical Diseases, and that several thousand injections are given during the year in India.—Lancet, 1909, v. 177, p. 1308.

Fonde, G. H., claims priority in reporting that quinine idiosyncrasy may be inhibited by the administration of morphine and atropine.—J. Am. M. Ass., 1909, v. 52, p. 229.

Salomon reports an interesting case of poisoning by quinine in a patient who had in a previous illness taken without difficulty 18 gm. of quinine hydrochlorate.—J. d. pharm. d'Anvers, 1909, v. 65, p. 417.

An unsigned item reports the fatal poisoning of a 3-year-old boy in Paterson, N. J., by 14 grains of quinine.—Boston M. & S. J., 1909, v. 161, p. 598.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 297-300) reviews some of the recent literature relating to the use of quinine.

#### NONOFFICIAL SALTS OF QUININE.

Muraro, F., replying to Bignelli, contributes a further note on the solubility of quinine tannate.—*Boll. chim. farm. Milan.*, 1909, v. 58, p. 224.

Dohme and Engelhardt report that the melting point of quinine and urea muriate is often higher than quoted in textbooks, which is from 70° to 75° C. They found several samples which contained the proper amount of quinine, etc., melting at about 130° C.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 717.

Hertzler, Brewster, and Rogers present a paper on quinine and urea hydrochloride as a local anæsthetic. The following advantages of this anæsthetic over cocaine and its congeners are given: (1) Its absolute safety. Brewster has used as much as 100 grains intravenously in 6 hours in pernicious malaria with the recovery of the patient. (2) The duration of the anæsthesia. The after pain in certain wounds is avoided. (3) The hæmostatic effect.—*J. Am. M. Ass.*, 1909, v. 53, pp. 1393-1394.

Additional references on the chemistry, pharmacology, and uses of quinine will be found in *Index Medicus* and *J. Am. M. Ass.*

#### QUININÆ BISULPHAS.

Tutin, Frank, calls attention to the methods given by the U. S. P., Ph. Ndl. and the Ph. Fr. V for testing quinine bisulphate for the presence of other cinchona alkaloids, and points out that the presence of inorganic sulphate has a very profound effect on the result of the ammonia test.—*Pharm. J. Lond.*, 1909, v. 29 (83), p. 602.

#### QUININÆ HYDROBROMIDUM.

Schamelhout, A., states that the Ph. Fr. V includes two hydrobromides of quinine—the basic or monohydrobromide, containing one molecule of hydrobromic acid and one molecule of water, and the neutral or dihydrobromide containing two molecules of acid and three of water. The Ph. Belg. III includes only one, which is designated under the name neutral and which is the basic hydrobromide of the Ph. Fr. V and not the neutral.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 75.

#### QUININÆ HYDROCHLORIDUM.

Motter, Murray Galt, in discussing the nomenclature of the Spanish edition of the *Pharmacopœia* of the United States, points out that

under "Quininæ hydrochloridum we find the Spanish title, *Clorhidrato de quinina* and the English name, *Quinine hydrochloride*." Just how this will appeal to the Spanish reader is a matter of surmise, for, in the *Farmacopea Oficial Español* (Madrid, 1905) this salt appears as "*Clorura quinico—Chlorurum quinicum—Clorhidato de quinina—Chlorhydras quininæ*."—*Midl. Drug.*, 1909, v. 43, p. 389.

Schamelhout, A., states that two hydrochlorides of quinine are found in the *Ph. Fr. V*; the basic or monohydrochloride and the neutral or dihydrichloride. The *Ph. Belg. III* mentions only the first of these salts which it designates under the name quinine chlorhydride.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 75.

Runne, E., discusses the titration of quinine hydrochloride for the purpose of determining the acid content, using phenolphthalein and Porrier's blue as indicators.—*Apoth. Ztg., Berl.*, 1909, v. 24, p. 663.

Clessler reports six samples which showed, in the determination of contaminating alkaloids, an ammonia requirement of 2.5 to 4.8 cc.; he calls attention to the varying quantities given by different investigations and manufacturers.—*Suedd. Apoth. Ztg.*, 1909, v. 49, p. 51.

#### QUININÆ SALICYLAS.

Seidell, Atherton, points out that the U. S. P. requires that quinine salicylate be soluble in 77 parts of water; his results would indicate that it is soluble only in 1,538 parts of water. The official solubility in alcohol is given as 1 in 11 parts; his results would indicate that it is soluble in 20.65 parts.—*J. Am. Chem. Soc.*, 1909, v. 31, p. 1168.

Wood, J. Stewart, calls attention to the value of quinine salicylate in canine practice. He finds the drug very effective in cases of gastrointestinal derangement, and also prescribes it in general complaints and as a general tonic.—*Vet. J., Lond.*, 1909, v. 65 (new series, v. 16), p. 28.

#### QUININÆ SULPHAS.

Schamelhout, A., states that there are two sulphates of quinine in the *Ph. Fr. V*—the basic or officinal, which corresponds to the Belgian, and the neutral sulphate.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 75.

Yvon reports to the Pharmaceutical Society of Paris the results of his researches on the subject of the high price of quinine sulphate, entailed by purity requirements of the *Ph. Fr. V*. It appears that the supplementary work necessary to obtain the desired purity increases the cost about 8 francs per kilogram.—*J. d. pharm. et d. chim., Par.*, 1909, v. 29, p. 309. See also pp. 329–336.

Tutin, Frank, in discussing the tests for purity of quinine salts points out that the method of applying the ammonia test for quinine sulphate as described in the *Ph. Fr. V* is to be preferred to that

given by other pharmacopœias. He also points out that the ammonia test has a much more limited application than has generally been supposed.—Pharm. J., Lond., 1909, v. 29 (83), pp. 600–602.

Runne, E., discusses the titration of quinine sulphate for the purpose of determining the acid content, using phenolphthalein and Porrier's blue as indicators.—Apoth. Ztg., Berl., 1909, v. 24, p. 663.

Whelpley, H. M., asserts that many physicians who know that the bisulphate is preferable continue to prescribe the sulphate from habit; on the other hand, druggists are in the habit of dispensing sulphate where just "quinine" is prescribed. Unquestionably it is equally right to dispense bisulphate where the word "quinine" is used.—Proc. Missouri Pharm. Ass., 1909, p. 75.

#### RENNIN.

Hildebrand, O. (Milch-Ztg., 38, 194–195), presents a general discussion of the properties of rennet and methods of preparation of extract.—Chem. Abstr. Am. Chem. Soc., 1909, v. 3, p. 1657.

Taylor, Alonzo E., discusses the identity of pepsin and rennin. He points out that it is possible to prepare a pepsin which has no rennetic properties, and to prepare a rennin without peptic properties. The valuable data are best interpreted as indicating that the two enzymes are different substances.—J. Biol. Chem., 1909, v. 5, pp. 399–404.

Herzog, R. O., discusses the relation between pepsin and rennin.—Ztschr. f. physiol. Chem., 1909, v. 60, pp. 306–310.

Shaklee and Meltzer discuss the destructive effect of shaking upon the proteolytic ferments.—Am. J. Physiol., 1909, v. 25, pp. 81–112.

Bernegau, L. H., points out that the claims by manufacturers for the milk coagulating power of their rennins means nothing unless the conditions of time, temperature, etc., under which the tests are made, are specified. By a method of testing given on page 192 of the proceedings of this association, 1905, he has found samples varying from 1 to 9,000, to 1 to 32,000, in milk coagulating power. The standard is from 1 to 20,000 to 1 to 30,000. Formerly sodium chloride was used to dilute rennin to a standard of uniformity. During the past year he has noticed the use of sugar of milk for this purpose.—Proc. Pennsylvania Pharm. Ass., 1909, p. 126.

Dohme and Engelhardt think that the widespread use of rennin would justify an assay process in the next edition of the U. S. P.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 717.

van Dam, W., presents a contribution to our knowledge of rennin action.—Ztschr. f. physiol. Chem., 1908–9, v. 58, pp. 295–330.

For additional references on the chemistry and uses of rennin see Chem. Abstr. Am. Chem. Soc., and Exp. Sta. Rec.

**RESINA.**

Mensik, J. (Österr. Pat.-Ann. 4685-07 vom 16 July, 1907) describes a method for producing finely divided rosin by introducing a melted and boiling mixture of rosin with rosin oil or rosin acids into water containing an appreciable amount of casein in solution.—Chem. Repert. Cöthen, 1909, v. 33, p. 663.

Foerster, P., reviews the color reactions of colophony and the detection of this substance as an adulterant in various articles.—Ann. d. chim. analyt., Par., 1909, v. 14, pp. 14-17.

Sans, J., describes a color reaction of colophony with methyl sulphate.—*Ibid.*, v. 14, pp. 140-141.

Grimaldi, Carlo, in a discussion of the terpenes of resin oils comments on his tests for pinene, camphene, phellandrene, sylvestrene, limonene and dipentene.—Chem. Ztg., Cöthen, 1909, v. 33, pp. 1157.

Levy, Paul, presents a contribution to our knowledge of the chemistry of American colophony.—Ber. d. deutsch. chem. Gesellschaft, Berl. 1909, v. 42, pp. 4305-4308.

Frankforter, George B., in a contribution to our knowledge of American colophony, discusses the resin of the Norway pine.—J. Am. Chem. Soc., 1909, v. 31, pp. 561-565.

**RESINA JALAPÆ.**

Foerster, P., discusses the valuation of resin of jalap and the detection of rosin as an adulterant.—Ann. d. chim. analyt. Par., 1909, v. 14, pp. 16-17

**RESINA PODOPHYLLI**

Scoville, Wilbur L., presents a study of the resin obtained from *Podophyllum peltatum* and *P. emodi* and presents a table showing the percentage of resin of each variety which was found to be soluble in the solvents noted.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 897-901. See also Am. J. Pharm., Phila., 1909, v. 81, pp. 434-436.

Francis, John M., points out that *P. peltatum* is the official source of resin of podophyllum in the U. S. P., while *P. emodi*, which is grown in India, is marketed in England in very considerable quantities, very largely to the exclusion of the American drug. The Indian drug yields a larger amount of resin and is delivered in London cheaper than the American drug.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 846.

Lohmann, Herman J., points out that the description of resin of podophyllum now given in the Pharmacopœia more nearly conforms to the product on the market than that in the 1890 edition; very little of the product formerly available conformed to the description then given.—Am. J. Pharm., Phila., 1909, v. 81, p. 595.

Gane and Webster point out that manufacturers generally are complaining that the U. S. P. requirements for resin of podophyllum are all too rigid and that by the ordinary methods of manufacture it is not possible to turn out a product answering all of the U. S. P. tests. They also point out that the difference in the character of this preparation is due to the fact that the crude drug itself has deteriorated.—*Drug Topics*, New York, 1909, v. 24, p. 84.

The A. Ph. A. committee on the drug market asserts that the greater portion of podophyllin being offered as U. S. P. is below standard.—*Ibid.*, 1909, v. 24, p. 358.

Kline, C. M., reports 5 samples of podophyllum resin 90.45 to 96.25 per cent soluble in alcohol and containing from 1.35 to 2.57 per cent of ash. Several additional samples had an inferior solubility in alcohol and chloroform, the alcoholic solubility being as low as 80 per cent.—*Proc. N. W. D. A.*, 1909, p. 181.

Gane, E. H., reports considerable variations from official standards for resin of podophyllum: Ash, 0.40 to 1.35; 95 to 99 per cent soluble in alcohol; 20 to 42.3 per cent soluble in water; 51.6 to 81.5 per cent soluble in ether; and 58.8 to 63 per cent soluble in chloroform.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 737.

Patch, E. L., reports on 8 samples of podophyllin: 0.5 to 2.00 ash; 89.4 to 99.5 per cent soluble in alcohol; 72 to 82 per cent soluble in ether, and 56 to 65 per cent soluble in chloroform.—*Ibid.*, p. 737.

### SCAMMONTUM.

Schamelhout, A., notes that the French product is the alcoholic extract, purified by animal charcoal, of the resinous gum of *Convolvulus scammonia*. The Belgian medicament is the alcoholic extract of the root or the gum resin of this plant, deprived of substances soluble in water.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 76.

Beringer, George M., asserts that the U. S. P. in common with a number of other pharmacopœias has persisted in directing that the resin of scammony be prepared from scammony, the latter being defined as the "gum resin obtained by incising the living root of *Convolvulus scammonia* L." and is required to contain not less than 75 per cent of ether soluble resin.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 813.

The A. Ph. A. committee on drug market asserts that the bulk of the "resin of scammony" sold to-day is the product obtained from the so-called Mexican scammony, or male jalap, little being made from the true scammony root. They ask if it would not be well to permit this officially, by including male jalap in the U. S. P.—*Drug Topics*, New York, 1909, v. 24, p. 358.



Gane and Webster comment on the source of commercial resin of scammony and point out that the present official process for obtaining resin might well be omitted, for no manufacturer has ever thought of using virgin scammony for the preparation of the resin. They also criticize the U. S. P. test for resin of scammony and point out that the ether insoluble content of Mexican scammony resin is, as a rule, higher than that of true scammony resin.—*Ibid.*, 1909, v. 24, p. 4.

Rusby, H. H., points out that, as scammony is no longer known in commerce, it will be necessary to revise the requirements for resin of scammony; but whether to define it as the resin of the root or whether to recognize only the purified resin is a great question.—*Midl. Drug.*, 1909, v. 43, p. 691.

An abstract asserts that fictitious scammony resin has been met with in French commerce, and outlines a test for its detection.—*Drug Topics*, New York, 1909, v. 24, p. 249.

Taylor, Frank O., comments on the examination of commercial resin of scammony and reports on nine samples. He concludes that from the saponification value alone it is possible to distinguish between the resin from *Convolvulus scammonia* and that from *Ipomœa orisabensis*.—*Am. J. Pharm. Phila.*, 1909, v. 81, pp. 105–111.

Cowie, W. B., discusses the valuation of scammony resin, and reviews the work done by Taylor with a view of correcting some evident errors in the clerical work.—*Brit. & Col. Drug.*, 1909, v. 56, p. 533. Also *Pharm. J., Lond.*, 1909, v. 29 (83), pp. 802–803.

Kebler, L. F., reports a sample of scammony resin which contained at least 50 per cent of rosin.—*Am. J. Pharm. Phila.*, 1909, v. 81, p. 75.

Kline, C. M., reports four samples of scammony resin with a saponification value of from 181.34 to 187.94 per cent. One contained 0.044 per cent ash. All of the above were probably resin from the so-called Mexican scammony.—*Proc. N. W. D. A.*, 1909, p. 132.

Baird, J. W., quotes W. M. Quinlan's report on eight samples of scammony resin, six of which were adulterated with starch. The conclusion is drawn that on account of the scarcity and high price this product is very apt to be adulterated.—*Proc. Massachusetts Pharm. Ass.*, 1909, p. 123.

#### RESORCINOL.

Düsterbehn points out that the Ph. Fr. V requires that the specific gravity of resorcin be 1.2717 and the melting point 119° C.—*Apoth. Ztg., Berl.*, 1909, v. 24, p. 240.

A committee of the Syndicat général de la Droguerie française states that resorcin melts at 110° to 111°, not at 119°, and asks that this be recognized.—*Bull. sc. pharmacol., Par.*, 1909, v. 16, p. 289.

Merck, E. (Darmstadt), criticizing the Ph. Fr. V, says that there is no resorcin on the market the aqueous solution of which does not give a very weak acid reaction as indicated by blue litmus paper. He cites Ph. Helv. IV, Ph. Ndl. IV, and Schneider and Süss, *Kommentar zum deutschen Arzneibuch IV*, E. Merck, *Jahresb.*, 1900.

As to melting point (Ph. Fr. V, 119°), he finds it 111–112° as given by Ph. Belg. [III]; Ph. Helv. IV, Ph. Germ. IV, Ph. Austr. VIII, Ph. Japon. III, Ph. Ital. [III], give it 110–111°; Ph. Ndl. IV, 110–112°; Ph. Dan. VIII [VII?], and Ph. Svec. IX, 108°. The U. S. P. VIII at first [1905] gave 119°; later [1907] the committee of revision adopted 109–111°.—*Ibid.*, p. 553.

Dunlop, Thomas, discusses the coloration of resorcin, and points out that while the presence of iron is a factor in producing the change it is primarily due to moisture; air, sunshine, and heat all seem to be necessary to promote the change when once it is set up.—Pharm. J. Lond., 1909, v. 28 (82), p. 580. See also Merck's Rep., 1909, v. 18, p. 177.

Volcy-Boucher and Girard report observations on the characterization of resorcin by the cyano-cupric reaction.—Répert. d. pharm., Par., 1909, v. 21, pp. 433–434. Also Bull. pharm. d. sud-est., 1909, v. 14, p. 458.

Caille, E., reports observations on the variation in the solidification temperature of mixture of resorcin with camphor.—Bull. Soc. scient. et méd. d. l'ouest, Rennes, 1909, v. 18, p. 84.

Nothen, H. (Quinz. therap., June 25, 1909), reports two cases of poisoning from the external application of resorcin ointment.—N. York M. J., 1909, v. 90, p. 170.

#### RHAMNUS PURSHIANA.

Henkel, Alice, presents an illustrated description of *Rhamnus purshiana* DC., gives the pharmacopœial name and common names, discusses its habitat, calls attention to several other species of *Rhamnus* which occur in the cascara district, describes the tree and bark, and discusses its collection, prices, and uses.—Bul. Bur. Plant Ind., U. S. Dept. Agric., 1909, No. 139, pp. 38–40.

The committee of reference in pharmacy submits a modified monograph for cascara sagrada.—Chem. & Drug., Lond., 1909, v. 74, p. 291.

Galloway, B. T., points out that the destructive methods used in obtaining the valuable native bark known as cascara sagrada, derived from *Rhamnus purshiana* DC. have led to a series of experiments looking toward the growing of the tree under cultivation.—Ann. Rep. U. S. Dept. Agric. for 1909, 1910, p. 280.

An editorial commenting on English cascara sagrada points out that the experiments made at Kew appear to indicate that this plant may be introduced on the western coasts of the British Isles

and prove of commercial value.—Chem. & Drug., Lond., 1909, v. 74, p. 156. Also Pharm. J., Lond., 1909, v. 28 (82), p. 175, and Pacific Pharmacist, 1909–1910, v. 3, p. 26.

True and Klugh, in discussing the cultivation of cascara sagrada, point out the reasons for the increasing scarcity of the wild growing drug, and express the belief that cascara can be cultivated, not only in its native habitat, but also in a very considerable area in the East.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 824–825.

Kline, Simon L., discusses the cascara sagrada situation in Oregon, and points out that gatherers have to carry the bark on their backs until they strike a horse trail, from which point it is taken by wagons to the principal distributing centers.—Oil, Paint, and Drug Reporter, New York, 1909, v. 75, Mar. 15, p. 23.

An editorial from the Portland Oregonian comments on the efforts made by a number of Oregon and Washington dealers in cascara sagrada to keep down the production of the commodity.—Drug Topics, New York, 1909, v. 24, p. 227.

A news note controverts the assertion that cascara sagrada is being rapidly exterminated, and points out that wherever given an opportunity, the tree quickly reproduces itself so that in 7 to 10 years, dependent on the soil and humidity of the climate, it is again ready for the peeler.—Chem. & Drug., Lond., 1909, v. 74, p. 656.

Caesar & Loretz (Geschäfts-Ber., 1909, p. 11) assert that the growing recognition of the superior qualities of frangula bark has seriously interfered with the increasing use of cascara sagrada in Europe.

Rosenthaler and Meyer report a number of experiments with cascara sagrada, and demonstrate that a preliminary treatment with calcium carbonate and alcohol prevents the decomposition of oxymethylanthraquinone, both free and combined. They also point out that cascara bark contains much less oxymethylanthraquinone than does frangula bark.—Arch. d. Pharm., 1909, v. 247, pp. 42–45. Also Ztschr. d. allg. österr. Apoth.-Ver. Wien, 1909, v. 47, p. 289.

Alcock, F. H., reports the separation of a greenish-yellow substance from the distillation of liquid extract of cascara sagrada. The substance gave a crimson-red color with ammonia, and probably is identical with the yellow volatile oil separated by Tschirch and Klaverness from Uganda aloes.—Pharm. J., Lond., 1909, v. 29 (83), p. 666.

Vanderkleed, C. E., reports two assays of cascara sagrada, lowest 2.97, highest 4.10 per cent emodine; both above standard.—Proc. Pennsylvania Pharm. Ass., 1909, p. 129.

Southall Bros. & Barclay (Rep., 1908–9, Birmingham, 1910, p. 8) assayed a large number of parcels of cascara sagrada for amount of extractive soluble in cold water. The results show a very considerable uniformity, the average varying but little from year to year; range, from 20.2 to 27.8 per-cent, average 23.6.

Düsterbehn points out that the Ph. Fr. V requires that extract of *cascara sagrada* be made with 60 per cent alcohol, and also requires the presence of free oxymethylantraquinone.—Apoth. Ztg., Berl., 1909, v. 24, p. 239.

Schamelhout, A., notes that in France the fluid extract of *cascara sagrada* is made with 50 per cent, in Belgium with 60 per cent alcohol.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 12.

The committee of reference in pharmacy asserts that the proportion of alcohol in Ext. *cascaræ sagradæ* liq. should be increased to 5 fluid ounces of the concentrated percolate.—Chem. & Drug., Lond., 1909, v. 74, p. 292.

Middleton, J. W., thinks that the liquid extract of *cascara sagrada* might with advantage have glycerin added instead of alcohol. Glycerin, he asserts is a much more suitable preservative for any preparation with cathartic and laxative properties.—Chem. & Drug., Lond., 1909, v. 74, p. 386.

Cowie and Brander, in a preliminary note on the refractometric examination of galenical preparations, report a study on liquid extract of *cascara sagrada* and present a table showing the various constituents observed by them.—Year-Book of Pharmacy, Lond., 1909, pp. 223-224. Also Chem. & Drug., Lond., 1909, v. 75, p. 227.

Symes, Charles, presents a note on liquid extract of *cascara sagrada*, and reports experiments which appear to show that the addition of aqua ammoniæ to the final menstruum will increase the yield of total active extract.—Pharm. J., Lond., 1909, v. 29 (83), p. 139. See also Year-Book of Pharmacy, Lond., 1909, pp. 319-320.

A "Casual Writer," in discussing formulas for liquid extract of *cascara sagrada*, points out that no published method for preparing such an extract seems to yield the same results in different hands, and that variability in the bark is obviously the only practical explanation of this fact. The writer believes that it still remains to be proved whether an extract free from bitterness retains the more valuable properties of the drug.—Pharm. J., Lond., 1909, v. 28 (82), p. 5.

Fussell, M. H., thinks that aromatic fluid extract of *cascara sagrada* should be relegated to the National Formulary.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 205.

Beringer, George M., suggests several changes in the formula for aromatic fluid extract of *cascara sagrada*.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 818.

Taylor, Augustus Carrier, asserts that there is no reason for continuing the formula for fluid extract of *cascara*, bitterless, of the N. F., when the formula for fluid extract *cascara*, aromatic, of the Pharmacopœia is almost identical. The U. S. P. formula contains magnesium oxide instead of lime as called for by the N. F. formula.—Pharm. Era, 1909, v. 41, p. 494.

Diehl, C. L., reports from the committee on N. F. the recommendation to add 100 cc. of alcohol to the formula for bitterless fluid extract of cascara sagrada N. F., and in the fourth line from the bottom change 750 to 600 and after the word "oil" in the third line from the bottom, insert "previously dissolved in the alcohol;" or else drop the formula.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1071.

Penschuck, M. (D. R. P. 213,292 vom 7. Februar, 1909, Zus. zu Pat. 206,467) outlines a method for making a bitterless, water-soluble, zinc-free extract of cascara sagrada.—Chem. Repert. Cöthen, 1909, v. 33, p. 518.

Becker, Henry C., asserts that cascara sagrada, until only recently, was the most popular remedy employed in the treatment of habitual constipation. He points out that the available preparations of the drug vary much in their activity, the aromatic fluid extract being the least efficacious unless employed in those cases where a very mild laxative effect is required.—Merck's Arch., 1909, v. 11, p. 278.

### RHEUM.

Schneider, Albert, points out that medicinal rhubarbs do well in California. They can be grown much like the culinary rhubarbs, which are very extensively cultivated in the San Francisco Bay region.—Pacific Pharmacist, 1909-10, v. 3, p. 193.

Caesar & Loretz (Geschäfts-Ber., 1909, p. 45) point out that the available supply of Chinese rhubarb would appear to indicate that the crop has been an unusually large one.

Rusby, H. H., thinks that rhubarb is one of the drugs for which extractive requirements should be established.—Midl. Drug., 1909, v. 43, p. 691. See also Pharm. Era, 1909, v. 42, p. 635.

A committee of Section III, Second International Congress for the Suppression of Adulterations (Paris, 1909), proposes as the definition of China rhubarb: The rhizomatous stalk of different species of *Rheum*, among them particularly *R. palmatum* L. and *R. officinale* Bailon, cultivated in China, and gives its characters. A definition and characters are also given for *R. rhaponticum*, reserved in the Ph. Fr. V for veterinary practice.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 350. See also Schamelhout, A., Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 164.

In connection with the description of *R. rhaponticum*, Schamelhout notes that this drug is described only in the Ph. Fr. V which reserves it for use solely in veterinary medicine.—*Ibid.*, p. 165.

Peters, W., gives the moisture content of rhubarb as 6.50 per cent; the ash content of the air-dry drug as 6.35 per cent; the ash content of the dried drug as 6.79 per cent, and the color of the resulting ash as greenish white.—Apoth. Ztg., Berl., 1909, v. 24, p. 538. Also Schweiz. Wehnschr. f. Chem. u. Pharm. Zürich., 1909, v. 47, p. 663.

Oesterle and Riat present a further contribution to our knowledge of rhein, its properties and chemical constitution.—Arch. d. Pharm., 1909, v. 247, pp. 527–534.

Rosenthaler and Meyer discuss the extraction of rhubarb and report experiments made by them to obviate the decomposition of the contained glucosides. They found that preliminary treatment with calcium carbonate and alcohol materially increases the total oxy-methylantraquinone content of the resulting extract.—Arch. d. Pharm., 1909, v. 247, pp. 45–48; also Ztschr. d. allg. österr. Apoth.-Ver., Wien, 1909, v. 47, pp. 290–291.

Caesar & Loretz (Geschäfts-Ber., 1909, pp. 98–100) describe the colorimetric valuation of rhubarb according to Tschirch; they also describe Griggi's test for curcuma, and point out that the Ph. Ndl. permits from 5 to 12 per cent of ash, the Ph. Austr. permits 12 per cent, and the Ph. Helv. 13 per cent of ash.

The Belgian inspectors of pharmacies state that they still find, under the name of rhubarb root, rhapontic roots. Moreover, true rhubarb roots are sometimes worm-eaten, and again they find roots damaged, dark brown, which have been submerged.—J. d. pharm. d'Anvers, 1909, v. 65, p. 551. See also p. 627.

Schamelhout, A., notes that extract of rhubarb Ph. Fr. V is a moist, aqueous extract; in Belgium it is prepared with 60 per cent alcohol.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 14.

McElhenie, Thos. D., presents a formula for the mixture of rhubarb and soda without the glycerin, which he thinks is objectionable in an antacid mixture.—Drug Topics, New York, 1909, v. 24, p. 198.

Beringer and Beringer object to the use of the fluid extract of rhubarb in the preparation of the sirup and propose a method utilizing the powdered drug.—Proc. New Jersey Pharm. Ass., 1909, p. 93. See also Am. J. Pharm., Phila., 1909, v. 81, p. 317.

Cook, E. Fullerton, reports that tincture of rhubarb, U. S. P., is satisfactory, but asks why powder the drugs when the preparation is made. He sees no advantage in the fresh grinding.

He reports that the formula for aromatic tincture of rhubarb is entirely satisfactory, except for the powdering of the drugs.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1003.

Diehl, C. L., reports from the committee on N. F. recommending the modification or deletion of the first formula for aqueous tincture of rhubarb N. F., and the deletion of the second.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1091.

Posey, H. G., points out that the "watery" tinctures of the Ph. Germ. are in a class all to themselves and it is just a little doubtful what to call them, according to the strict acceptance of the term.—*Ibid.*, 1909, v. 57, p. 996.

Becker, Henry C., asserts that prior to the discovery of cascara sagrada, rhubarb was the standard remedy for constipation; it is still useful, though less frequently employed. The compound pill of rhubarb is the most popular form of its administration.—Merck's Arch., 1909, v. 11, p. 278.

Felter, H. W., recommends rhubarb where there is evidence of gastro-intestinal irritation, long red, pointed tongue. Pain is prominent.—Eclectic M. J., Cincin., 1909, v. 69, p. 451.

#### RHUS GLABRA.

Capps, Pratt, McCrae, and Halsey recommend the deletion of *rhus glabra* and *fluidextractum rhois glabræ* from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

#### ROSA GALLICA.

An editorial reviews a recent publication from T. W. Stemmler & Co., on the roses of Kazanlik, and presents a number of illustrations from that publication.—Am. Druggist, N. Y., 1909, v. 54, p. 138-139.

Schamelhout, A., notes that in France one uses, according to circumstances, the petals of the pale rose and the petals of the red rose. The Ph. Belg. III mentions only the petals of the red rose under the name rose flower.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 76.

Posey, H. G., asserts that compound infusion of rose N. F. is of very little use and should be dropped.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 988.

Beringer and Beringer submit a "rational process" for the direct preparation of sirup of rose from rose leaves in the form of powder.—Proc. New Jersey Pharm. Ass., 1909, p. 93.

Beringer, George M., in a report of further work on fluid glycerates, presents a formula for fluid glycerate of red rose.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 1010-1011. See also Am. J. Pharm., Phila., 1909, v. 81, p. 477.

#### RUBUS.

Henkel, Alice, presents a description of blackberry, (1) *Rubus villosus* Ait.; (2) *Rubus nigrobaccus* Bailey; (3) *Rubus cuneifolius* Pursh., gives the pharmacopœial name, synonym and common names, discusses the habitat and range, describes the plants, other species and the bark, and discusses its collection, prices and uses.—Bul. Bur. Plant. Ind., U. S. Dept. Agric., 1909, No. 139, pp. 28-29.

Capps, Pratt, McCrae, and Halsey recommend the deletion of *rubus*, *fluidextractum rubi* and *syrupus rubi* from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

Nixon, C. F., suggests a modified formula for sirup of rubus based on the official method for making sirup of ipecac.—Apothecary, 1909, v. 21, April, p. 18.

Cook and Ebner present a modified formula for sirup of rubus, which yields a preparation that does not precipitate, a sample standing for 8 months being still perfectly clear.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1006.

Beringer and Beringer assert that rubus is easily extracted by glycerin and offer a substitute for the present formula for sirup which they consider unsatisfactory.—Am. J. Pharm., Phila., 1909, v. 81, p. 318. See also Proc. New Jersey Pharm. Ass., 1909, p. 94.

#### SABAL.

Capps, Pratt, McCrae, and Halsey recommend the deletion of sabal from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

Fussell, M. H., in recommending the deletion of sabal (saw-palmetto) from the Pharmacopœia, asserts that it has been largely advertised by certain firms. Its real use is problematic.—Tr. Am. M. Ass. Sec. Pharm. and Therap., 1909, p. 205.

#### SABINA.

Umney, J. C., points out that in the programme for the White Cross Society Congress a very interesting note is recorded under savin, the features being given for distinction between *Juniperus phoenicea* and *J. sabina*. He points out that he had called attention to the uselessness of the oil of the former for medicinal purposes.—Chem. & Drug., 1909, v. 75, p. 580.

#### SACCHARUM.

A number of articles on the production and the chemistry of sugar are presented.—Proc. VIIth Internat. Congress App. Chem., Sec. V, Sugar, 1909, London, 1910.

Horne, W. D., discusses the sugar industry in its relations to the United States, and points out that the per capita consumption of sugar was 77.54 pounds in 1907, which exceeds that of any previous year. He also presents a table showing the consumption of sugars of various origin for the years 1907-8.—J. Ind. Eng. Chem., 1909, v. 1, pp. 3-4.

An unsigned note presents a table showing the sugar production of the world during 1907-8 and 1908-9, the total for 1907-8 being 6,562,274 metric tons, the total for 1908-9 being 6,487,000 metric tons.—Pharm. J., Lond., 1909, v. 29 (83), p. 690.

The Catalogue of Definitions adopted by the International Congress for the Suppression of Adulteration (Geneva, 1908) states that refined sugar, commercially pure should contain at least 99.5 per cent



of saccharose. Standards are also given for other sugars.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 239.

Nixon, C. F., asserts that ordinary granulated sugar does not conform to the requirements of the Pharmacopœia for saccharum, and points out that for pharmacopœial purposes the purest form of sugar available should be used.—Apothecary, 1909; v. 21, April, p. 17.

Hunt, Reid, believes that the description of sugar might more properly be placed in the Appendix of the Pharmacopœia.—Tr. Am. M. Ass. Sec. Pharm. & Therap., 1909, p. 11.

Bryan and Agee present a report on cooperative work done in connection with the determination of sugars.—Proc. Ass. Off. Agric. Chem. 1909, 26th Ann. Conv., pp. 175-184 (Bull. Bur. Chem. U. S. Dept. Agric., 1910, No. 132).

Horne, W. D., discusses dry lead defecation in raw sugar analysis.—*Ibid.*, pp. 184-186.

Agee, H. P., presents a comparison of methods for sucrose in sugar-house control.—*Ibid.*, pp. 186-187.

Hanriot and Gautier discuss a novel method for determining the constitution of sugar.—Compt. rend. Acad. d. sc., Par., 1909, v. 148, pp. 640-645.

Hudson, C. S., comments on the significance of certain numerical relations in the sugar group and proposes systematic nomenclature of the A and B forms of the sugars and their derivatives.—J. Am. Chem. Soc., 1909, v. 31, pp. 66-86.

The same author discusses the inversion of cane sugar by invertase and reports a number of results obtained by him.—*Ibid.*, 1909, v. 31, pp. 655-664.

Thurston, Azor, discusses the various tests for glucose, dextrose, starch, grape, corn and diabetic sugar.—Merck's Rep., 1909, v. 18, p. 168.

Carrez, C., discusses the copper reactions in the determination of sugar.—Répert. d. pharm., Par., 1909, v. 21, pp. 193-199.

Maillard, P., describes a new technique for the determination of sugar by means of Bonnan's reaction.—*Ibid.*, 1909, v. 21, pp. 189-295; 337-341.

Pieraerts, J., discusses the polariscopic valuation of mixtures of saccharose and maltose hydrate.—Ann. d. pharm., Louvain, 1909, v. 15, pp. 145-147.

Morse and Holland report observations on the osmotic pressure of cane sugar solution at 25° C.—Am. Chem., J., 1909, v. 41, p. 1-19. See also pp. 257-276.

Labougle and Boutin (Bull. Commercial) recalling the accidents which may be provoked by injections of artificial serum, even isotonic, propose replacing the sodium chloride by sugar; 10.30 gm. of pure sugar per 100 gm. distilled water produce a solution perfectly isotonic

having cryoscopic properties equal to that of blood serum and without toxicity. This solution has been employed in massive doses with great success in grave illnesses: typhoid, malaria, and septicæmia. The sole contra-indication is diabetes.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 559.

See also under Tests, p. 101.

Additional references on the production and chemistry of sugar will be found in *Chem. Abstr.*, *Am. Chem. Soc.*, and *Exp. Sta. Rec.*

#### SACCHARUM LACTIS.

Umney, J. C., in connection with the proposed international standard for sugar of milk, points out that the ash requirement is 0.5 per cent, which is higher than necessary and higher than either the British, French, or U. S. P.—*Chem. & Drug.*, 1909, v. 75, p. 581.

Hillringhaus and Heilmann discuss the uncertainty of the requirements made in the several pharmacopœias for the purity of sugar of milk.—*Chem. Ztg. Cöthen*, 1909, v. 33, p. 86.

Dohme and Engelhardt report on the examination of milk sugar referred to above. These authors found that when the test for cane sugar is carried out at a temperature exceeding 20° C. incorrect results for the amount of cane sugar are obtained; they found by experiment that diluted alcohol dissolves cane sugar in proportion as the temperature increases. Therefore they advocate that this test be carried out at a temperature below 20° C. After other investigations the authors think that the sulphuric acid test should also be carried out at a temperature below 20° C. and that the milk sugar should be finely distributed on the sulphuric acid.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 716.

Rosengarten, George D., points out that even the corrected test has given considerable trouble in testing for cane sugar and is difficult to comply with. The test of the Ph. Germ. is much more reasonable.—*Am. Druggist*, N. Y., 1909, v. 55, p. 366.

Havenhill, L. D., thinks that the tests for the presence of cane sugar in milk sugar are still unsatisfactory. The polariscope appears to afford a satisfactory solution of the problem.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 800.

Gane and Webster think that the U. S. P. test for the presence of cane sugar in milk sugar, as modified by the additions and corrections of May 1, 1907, is too rigid. They say that they have yet to come across a sample of milk sugar that will pass this test. They also point out that cane sugar is not a likely adulterant of milk sugar and that the simpler fermentation tests, or the sesame oil test suggested by Leffman, are quite sufficient to insure its absence.—*Drug. Topics*, New York, 1909, v. 24, p. 180. See also *Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 733.

Carrez, C., discusses the defecation of milk for the purpose of determining the lactose by means of copper solution.—*Répert. d. pharm., Par.*, 1909, v. 21, pp. 102-103.

Kilian, H., reports observations on the action of calcium hydroxide on milk sugar.—*Ber. d. deutsch. chem. Gesellsch., Berl.*, 1909, v. 42, pp. 3903-3904.

An editorial (*Lancet*, 1909, v. 176, p. 1703) discusses the value of milk sugar in infant feeding, and quotes Weigert (*Berl. Klin. Wchnschr.*, May 24, 1909), who has found no advantage in employing milk sugar solution over simple dilution with water or with some simple diluent, such as barley water. Other questions aside, the expense and time in the management of municipal dairies add importance to this observation.

#### SAFROLUM.

Capps, Pratt, McCrae, and Halsey recommend the deletion of safrolum from the U. S. P.—*J. Am. M. Ass.*, 1909, v. 53, p. 792.

Schimmel & Co. (Semi-Annual Report, April, 1909, p. 142) report that safrol is soluble to the extent of 3:100 of 70 per cent alcohol, less than 0.1:100 of glycerin, and in all proportions of 96 per cent alcohol, of olive oil, or of paraffin oil.

Girdler, A. T., calls attention to some of the uses of oil of sassafras and of safrol, more particularly as a remedy for bites of insects.—*Pharm. J., Lond.*, 1909, v. 28 (82), p. 729.

Sinclair, Neil C., reports some personal experience with the use of oil of sassafras or safrol as an insecticide.—*Ibid.*, 1909, v. 28 (82), p. 787.

#### SALTS.

LaWall, Charles H., reports studies of exsiccated salts of the Pharmacopœia, and the conditions under which they are most apt to deteriorate. He finds that freshly made anhydrous salts, exposed to saturated moist atmosphere for a period of 10 days, will absorb from 41 to 53 per cent of water. He also found that the commercial so-called dried and powdered salts contain from 2 to 20 per cent of water, and points out the great importance of keeping exsiccated salts in sealed, moisture-proof containers.—*Proc. Pennsylvania Pharm. Ass.*, 1909, pp. 369-371.

Dunn, John A., discusses the granular effervescent salts of the National Formulary and points out that the formulas contain altogether too much sugar. He suggests that a formula be given for each one of the granular effervescent salts of the N. F. which will work readily in both small and large quantities and give a finished preparation which will keep well.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 955.

Barnett, J. J., considers the three defects of the N. F. granular powders to be as follows: (1) The use of sugar, which seems out of place in those preparations for the production of artificial mineral waters, and which invariably causes discoloration in time, whereas the powder should remain white. (2) That the formulas are incorrect in that they make no allowance for the  $\text{CO}_2$  lost in the reaction, and which loss causes an increase in the percentage of the medicinal agents. This increase, while of no seriousness in these preparations, should be corrected. (3) That constant stirring of the mass is directed during the heating process. Better results can be obtained by heating, passing through a sieve, and drying.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 24.

Caspari, Chas., jr., points out that considerable experience and proper climatic conditions are necessary for making granular salts, and that the N. F. formulas are designed for the extemporaneous making of effervescent compounds.—*Ibid.*, p. 24.

#### SAL CAROLINUM FACTITUM N. F.

Haeussermann, J., discusses several formulas for crystallized Carlsbad salts, and expresses the belief that the preparation directed in the Ph. Germ. IV is the preferable one.—J. d. pharm. v. Elsass-Lothr., 1909, v. 35, pp. 30–31.

The Belgian inspectors of pharmacies say that artificial Carlsbad salt is a compound medicament of which the pharmacist has the exclusive sale, but there is often delivered as Carlsbad salt the common sodium sulphate in large crystals, and the public, long accustomed to this product, refuses to accept the official product.—J. d. pharm. d'Anvers, 1909, v. 65, p. 627.

Schamelhout, A., calls for a law against frauds.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 271.

Dunn, John A., presents a formula for granular effervescent artificial Carlsbad salt N. F.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 955.

#### SAL KISSINGENSE FACTITUM N. F.

Dunn, John A., presents a formula for granular effervescent artificial Kissingen salt N. F.—*Ibid.*, p. 955.

#### SAL VICHYANUM FACTITUM N. F.

Dunn, John A., presents a formula for granular effervescent artificial Vichy salt N. F.

He also presents a formula for granular effervescent artificial Vichy salt with lithium N. F.—*Ibid.*, p. 956.

#### SALICINUM.

Henkel, Alice, presents a monograph on *Salix alba* L.; enumerates the common names, discusses its habitat and range, gives a description

of the tree and of the bark, and comments on its collection, prices, and uses. Also discusses other species.—Bul. Bur. Plant Ind. U. S. Dept. Agric., 1909, No. 139, pp. 12–13.

Sigmund, Wilhelm, reports observations on the salicin splitting enzyme which he has found in different species of *Salix* and *Populus*. The isolated enzyme is not emulsin, and the author has given it the name salikase.—Monatsh. f. Chem. Wien, 1909, v. 30, pp. 77–87.

Hudson and Paine discuss the hydrolysis of salicin by the enzyme emulsin, with reference to the development of an accurate polariscopic method for measuring the activity of the latter.—Circ. Bur. Chem. U. S. Dept. Agric., 1909, No. 47, pp. 8.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 48) found three samples of salicin which melted between 197° and 198° C., while a fourth melted at 194° C.

### SALVIA.

Capps, Pratt, McCrae, and Halsey recommend the deletion of salvia from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

Rusby, H. H., thinks that the description of salvia should be amended so as more perfectly to exclude the leaves of other species.—Midl. Drug., 1909, v. 43, p. 691. See also Pharm. Era, 1909, v. 42, p. 635.

Schneider, Albert, points out that sage is easily cultivated and common everywhere in California.—Pacific Pharmacist, 1909–10, v. 3, p. 193.

Chapoutot (Monde méd.) thinks that, after having been for a long time considered the panacea par excellence, sage is to-day quite forsaken, yet it is far from being a medicament of no value. Its immense reputation gave it the name of salvia or saver. It enters into a number of preparations.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 122.

### SANGUINARIA.

Fussell, M. H., in recommending the deletion of sanguinaria from the Pharmacopœia, asserts that it is a relic of the past.—Tr. Am. M. Ass. Sec. Pharm. & Therap., 1909, p. 205.

Bernegau, L. Henry, thinks that an assay process should be included for sanguinaria; he also reports samples of sanguinarine nitrate that were found to assay but 52 per cent.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 80. See also Am. J. Pharm., Phila., 1909, v. 81, p. 124.

Vanderkleed, C. E., reports 12 assays of sanguinaria, lowest 3.41, highest 6.63, per cent alkaloids; all above standard.—Proc. Pennsylvania Pharm. Ass., 1909, p. 129.

Pearson, W. A., reports one sample showing the presence of 2.46 per cent of alkaloids.—Proc. Pennsylvania Pharm. Ass., 1909, p. 181.

Patch, E. L., asserts that the U. S. P. process for fluid extract of sanguinaria is wasteful, the alkaloid is not extracted as well as by an alcoholic menstrum.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 732.

Cook, E. Fullerton, reports that precipitation begins in the percolate before tincture of sanguinaria is finished, and the tincture contains a slight precipitate, although not more than in many other tinctures. Acetic acid has been added to prevent the separation of the sanguinarine.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1003.

Beringer, George M., in a report on further work on fluid glycerates, presents a formula for fluid glycerate of sanguinaria.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1011. Also Am. J. Pharm., Phila., 1909, v. 81, p. 477.

Prince, Will J., discusses the history, character, properties, and therapeutic action of sanguinaria. In large doses it is an acrid emetic, in small doses stimulant, tonic, and a stimulant expectorant. It is used in the treatment of intermittent and bilious fevers, also in diseases of the respiratory organs. He considers it of superior efficacy as a pectoral in the treatment of phthisis pulmonalis. Externally it is used as an escharotic and antiseptic and topical excitant.—Eclectic M. J., Cincin., 1909, v. 69, pp. 596–598.

Leming, W., presents a number of specific indications for the use of *Sanguinaria canadensis*, and asserts that it is a specific for the wrongs associated with pulmonary or bronchial congestion and relaxation of tissue with increased secretion and diminished sensibility.—J. Therap. & Diet., 1909–10, v. 4, pp. 161–163.

#### SANTONICA.

Peters, W., gives the moisture content of santonica as 5.62 to 6 per cent; the ash content of the air dry drug as being 10.36 to 11.74 per cent; the ash content of the dried drug as 11.03 to 12.44 per cent, and the color of the resulting ash as yellowish gray.—Apoth. Ztg., Berl., 1909, v. 24, p. 537.

Schamelhout, A., states that, according to the Second International Congress for the Repression of Adulteration (Paris, 1909), santonica ("semen contra") in the fresh state, recently collected, should yield 2 to 3 per cent of essential oil.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 338.

#### SANTONINUM.

Bargellini, G., reports observations on the action of sulphuric acid on santonin.—Proc. VIIth Internat. Congress App. Chem., Sec. IVa 1, Organic Chemistry, 1909, London, 1910, pp. 332–334.

Pannain, E. (Accad. dei Lincei Rend. (5), Bd. XVII, II, p. 499–500, 1908), presents some observations on the electrolysis of santonin and its derivatives.—Phys.-Chem. Centralbl. 1908–9, v. 6, p. 476. See also p. 519.

The Belgian inspectors of pharmacies report that *santonin* is badly kept, strongly colored by the light.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 588.

Schamelhout, A., says that the altered product may be purified by recrystallizing in alcohol.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 259.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 49) report on nine consignments of *santonin*, the melting point ranging from 171° to 172° C. and all responding normally to the recognized tests.

Thomas, R. L., for the night terrors of children, knows of no remedy that will take the pathological kink from the little ones so readily as *santonin*. It is true that it is not a definite pathological condition, and may result from a variety of causes \* \* \*, but like a bullet from a trusty rifle in the hands of a good marksman, it will hit the mark every time the conditions are present.—*Eclectic M. J.*, Cincin., 1909, v. 69, pp. 631-632.

Fyfe, John William, asserts that, with proper precautions, *santonin* is a perfectly safe remedy to employ in the treatment of children. It should be borne in mind, however, that it is a powerful drug and that under some circumstances large doses may do harm.—*Eclectic Rev.*, 1909, v. 12, pp. 337-339.

Miro, Abraham Perez, discusses the use of *santonin* as an anti-parasitic.—*Rev. Med. Cir. Habana*, 1909, v. 14, p. 10.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 304-305) reviews some of the recent literature relating to the use of *santonin*, and calls attention to the suggestions made by Pellisier (*Presse méd.*, 1909, No. 87, p. 776) who recommends the administration of this drug dissolved in almond oil. The value of this form of administration of *santonin* in oil is said to depend on the fact that the *santonin* passes through the stomach unchanged, and acts upon the parasites in its full strength.

Sargeant, F. Pilkington, asserts that *santonin* is used as a vermifuge for poultry in doses of 3 grains night and morning.—*Pharm. J.*, Lond., 1909, v. 29 (83), p. 237. Also *Drug Topics*, New York, v. 24, 1909, p. 356.

#### SAPO.

Goldschmidt, Fr. (*Seifensieder-Ztg.*, 1909, S. 178), discusses the production of soap and the saponification of oils under pressure.—*Chem. Repert.*, Cöthen, 1909, v. 33, p. 291.

"A. Z." (*Seifensieder-Ztg.*, 1908, Bd. 35, S. 1387-1388) presents a review of the methods used in the manufacture of soap in the middle of the nineteenth century.—*Ibid.*, 1909, v. 33, p. 45.

A number of illustrations showing the manufacture of Castile soap are reprinted.—*Spatula*, 1908-9, v. 15, pp. 535 ff.

Schamelhout, A., notes that the French medicinal soap should be obtained by the saponification of almond oil; the Belgian of olive oil; the latter should contain not more than 20 per cent of water, the former not more than 25 per cent.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 76.

Fendler and Frank discuss the estimation of the fatty acid content of soaps, and describe and illustrate several methods for estimating the fatty acid content of soaps made from various oils.—*Ztschr. f. ang. Chem.*, 1909, v. 22, pp. 252-261.

An unsigned article discusses the analysis of soap, and presents a number of references on the subject.—*Chem. Eng.*, 1909, v. 10, pp. 203-204.

Havenhill, L. D., thinks that the allowance of 36 per cent for water in soap seems to be quite excessive; 25 per cent would be quite liberal. Since this article is to be used in the powdered form, where the moisture rarely exceeds 3 per cent, it would seem desirable to have the tests refer to the dried soap.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 800.

Bernegau, L. H., reports that only one sample of Castile soap was found to contain animal fats. The moisture varied from 15 to 25 per cent.—*Proc. Pennsylvania Pharm. Ass.*, 1909, v. 123.

Patch, E. L., reports one lot of powdered Castile soap rejected, contained animal fats.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 738.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 50) examined 19 brokers' bulk samples of white Castile soap, 7 were found to have been prepared from oil other than olive. Four of the latter contained both sesame and cotton seed oil, one showed the presence of arachis, and 2 others gave a high yield of volatile fatty acids, indicative of coconut oil.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 30) examined a considerable number of samples of the "Sapo durus" on the market, and while the greater number gave results consistent with their preparation from olive oil, in 3 instances this was not so.

Mittelbach, William, thinks that the formula for soap plaster is very good.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 816.

Diehl, C. L., reports from the committee on N. F. recommending the deletion of spirit of soap N. F.—*Ibid.*, p. 1085.

#### SAPO MOLLIS.

Dunn, John A., advocates the use of cotton seed oil instead of linseed oil for making the official soft soap. He asserts that in working with cotton seed oil it is not necessary to use alcohol to hasten the saponification if in its place a little soap is used, previously dissolved in twice its weight of water. About 50 gm. of soap is sufficient for 400 gm. of oil.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 949.



Gane, E. H., asserts that much soft soap in the market is objectionable owing to high alkalinity; free alkali,  $K_2CO_3$ , 0.117 to 2.39; free alkali KOH 0.000 to 0.330.—*Ibid.*, p. 738.

Caldwell, Paul, reports having noticed repeatedly that the soft soap of the Pharmacopœia is very defective, in that it is too alkaline and is made from an oil, the odor of which is not easily masked. A soap made with cotton seed oil and with a fixed amount of alkali, not over 1 per cent, is much to be preferred to the present soap. Liniment of soft soap, so-called, is not intended as an embrocation. It is confused with the soap liniment of the Pharmacopœia and might well be called a spirit of soap.—*Bull. Pharm.*, 1909, v. 23, p. 116.

Richter, Ernst, presents a formula for the direct preparation of liniment of soft soap from olive oil.—*Apoth. Ztg.*, Berl., 1909, v. 24, p. 230.

Vicario discusses the making of neutral potassium soap and soap pomades.—*J. d. pharm. et d. chim.*, Par., 1909, v. 29, pp. 428-433.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 51) report on 24 consignments of soft soap satisfactory in the main. One contained more free alkali than is allowed but all possessed the characters of pure olive oil soap.

Diekman, George C., reports seven samples of tincture of green soap, examined by the eastern branch, containing methyl alcohol.—*Rep. New York Bd.*, Pharm., 1909-10, p. 12.

Scoville, W. L., describes and figures a container for solution of soft soap; also presents a formula for liquid soap made from cotton seed oil, potassium hydroxide, and methyl alcohol.—*Bull. Pharm.*, 1909, v. 23, p. 120.

Sargeant, F. Pilkington, asserts that soft soap is not only a detergent, but also an insecticide of much merit. A solution is used for the destruction of aphides. It is also used to emulsify nicotine, paraffin, etc., and in the preparation of sprays, washes, sheep dips, etc. For horticultural purposes it should be practically devoid of free alkali.—*Pharm. J.*, Lond., 1909, v. 29 (83), p. 237, also *Drug Topics*, New York, 1909, v. 24, p. 357.

#### SARSAPARILLA.

Schamelhout, A., states that the root of Veracruz sarsaparilla is official in the Ph. Fr. V; the Ph. Belg. III does not specify.—*Bull. Soc. roy. d. pharm.*, Brux., 1909, v. 53, p. 76.

Fleury, E., criticizes the Ph. Fr. V description of sarsaparilla.—*Bull. sc. pharmacol.*, Par., 1909, v. 16, p. 462.

Peters, W., gives the ash content of air dry sarsaparilla as 13.62 per cent, and the color of the resulting ash as brownish gray.—

Apoth. Ztg., Berl., 1909, v. 24, p. 538, also Schweiz. Wehnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, p. 663.

Hartwich, C., describes and illustrates the structural characteristics of Bolivian sarsaparilla known as "Zarza de palito."—*Ibid.*, pp. 126-127.

Morel, Pierre, presents notes and illustrations of various adulterants and substitutes of sarsaparilla.—Ann. d. Falsif., 1909, v. 2, pp. 468-473.

Düsterbehn points out that the Ph. Fr. V directs that fluid extract of sarsaparilla be made with 30 per cent alcohol.—Apoth. Ztg., Berl., 1909, v. 24, p. 239.

#### SASSAFRAS.

Henkel, Alice, presents a description with an illustration of *Sassafras sassafras* (L) Karst, gives the pharmacopœial names, synonyms and common names, discusses its habitat and range, describes the tree and the bark, and its collection, prices, and uses.—Bul. Bur. Plant Ind. U. S. Dept. Agric., 1909, No. 139, pp. 25-26.

Holm, Theo., describes *Sassafras officinale* Nees, and presents a number of illustrations showing a seedling of sassafras, fruiting branch of sassafras and cross sections of the stem, root, and leaf.—Merck's Rep., 1909, v. 18, pp. 3-6.

#### SCAMMONIUM.

Beringer, George M., points out that scammony illustrates the changes of commerce that are continually taking place and that require the consideration of the committee of revision so that the official requirements may be in harmony with existing trade conditions and may be readily complied with.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 813-814.

Rusby, H. H., thinks that the subject of scammony is in the greatest need of study. Since the product of the living root seems to be no longer known in commerce, this requirement should be abolished. The root itself should be admitted since it is an important article of commerce. The Mexican substitute should be admitted only under a separate title if at all.—Midl. Drug., 1909, v. 43, p. 691. Also Pharm. Era, 1909, v. 42, p. 635.

Guigues, P., presents a comprehensive paper on scammony, prepared by request for the Second International Congress for the Suppression of Adulterations.—Bull. sc. pharmacol., Par., 1909, v. 16, pp. 448-452.

Schamelhout, A., states that owing to the difficulties which the definition of scammony and scammony extractive presents, the section of the Second International Congress for the Repression of

Adulterations (Paris, 1909) decided to refer the matter to a future congress.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 338.

Umney, J. C., in connection with the proposed international requirements for scammony asserts that a maximum of ash of 8 per cent, as given, is in his opinion somewhat high, although that of the Ph. Brit. (3 per cent) is somewhat too low; 5 per cent would be sufficient. The requirement for resin is 85 per cent, and is above the requirements of any of the pharmacopœias and above any commercial samples.—Chem. & Drug., 1909, v. 75, p. 580.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 49) report on 12 samples of scammony yielding 19.9 to 84 per cent to ether. Three samples labeled "Aleppo" contained from 19.9 to 23.8 per cent ether soluble matter instead of about 50 per cent. A small specimen labeled "scammony extract" was soluble in ether 34.7 per cent of its weight. The balance was made up of starch and other inert matter.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 17) report that a specimen of "virgin" scammony yielded 79.1 per cent to ether, contained 4.94 per cent of mineral matter, and formed a satisfactory emulsion with water. "Aleppo" scammony proved in one instance to yield but 22.5 per cent to ether.

Cowie, W. B., discusses the possible use of optical rotation in the assay of jalap, scammony, orizaba, and tampico resins, and presents a table showing the comparison of the values obtained for the optical activities of these resins.—Brit. & Col. Drug., 1909, v. 55, p. 63.

Warin, J., reports on a fictitious scammony prepared from resin of scammony instead of the juice of the plant.—J. d. pharm. et d. chim., Par., 1909, v. 29, pp. 521-523. See also 503.

Kline, C. M., reports three samples of scammony root that consisted wholly or largely of *Ipomœa orizabensis*, Mexican scammony and not true scammony.—Proc. N. W. D. A., 1909, p. 132.

#### SCILLA.

Schneider, Albert, reports that squill thrives exceedingly well in the immediate coast region of California in moist, sandy soil. The bulbs grow to large size.—Pacific Pharmacist, 1909-10, v. 3, p. 193.

Peters, W., gives the moisture content of squill as being from 8.55 to 12.33 per cent, the ash content of the air-dry drug as being 2.76 to 3.55 per cent, the ash content of the dried drug 3.14 to 3.89 per cent, and the color of the resulting ash as white to whitish gray.—Apoth. Ztg., Berl., 1909, v. 24, p. 537. Also Schweiz. Wehnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, p. 663.

Dieterich, Karl, reports on a sample of squill which contained upward of 5 per cent of small stones or pebbles.—Pharm. Zentralh., 1909, v. 50, pp. 971-972.

The Belgian inspectors of pharmacies report powdered squill as sometimes deteriorated, lumpy on account of moisture, because proper care has not been taken to keep it in a drying bottle.—J. d. pharm. d'Anvers, 1909, v. 65, p. 552.

Evans Sons Lescher & Webb (Analytical Notes, 1909, pp. 2-3) recommend the isolated mammalian heart for the standardization of preparations of squill.

Martin, William, outlines the method of biochemical standardization of squill employed by him.—Pharm. J., Lond., 1909, v. 29 (83), pp. 152-153.

Houghton and Hamilton in a discussion of the pharmacological assay of heart tonics, assert that they do not feel warranted in proposing a standard for the activity of the fluid extract of squill U. S. P. VIII, as they have found that the menstruum proposed for this drug does not completely exhaust it.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 785, also Am. J. Pharm., Phila., 1909, v. 81, p. 471.

Fussell, M. H., in recommending that vinegar of squill be deleted from the Pharmacopœia, asserts that it is so rarely used that it but cumber space.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 203.

Gane and Webster point out that vinegar of squill is directed to be made by exhausting squill in No. 20 powder with the diluted acid and heating the product to boiling to coagulate the albuminous matter. They assert that a better process is to use cut squill and extract by a macero-percolation process, thereby avoiding extraction of so much albuminous matter and the subsequent use of heat, which darkens the product and is apt to weaken its activity.—Drug Topics, New York, 1909, v. 24, p. 325.

The committee of reference in pharmacy suggests that in making acetum scillæ Ph. Brit., the product should be made up to a pint with diluted acetic acid.—Chem. & Drug., Lond., 1909, v. 74, p. 288.

Schamelhout, A., notes that the French vinegar of squill is prepared by macerating 10 gm. of scales of squill in 98 gm. of vinegar to which are added 2 gm. of crystallized acetic acid. In Belgium one employs 10 gm. of scales of squill, 10 gm. of alcohol and 90 gm. of vinegar.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 84.

He also points out that extract of squill in France is moist and prepared with 60 per cent alcohol; in Belgium it is dry and prepared with 70 per cent.—*Ibid.*, v. 53, p. 14.

Cook, E. Fullerton, reports that a slight, flocculent precipitate forms in tincture of squill after standing 10 months, but the preparation is satisfactory.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1003.

Schamelhout, A., notes that the French tincture of squill is prepared with 60 per cent alcohol; the Belgian with 70 per cent.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 83.

Caldwell, Paul, points out that it is a well-known fact that a sirup made from the vinegar of squill undergoes acetic fermentation and consequently does not keep well. A sirup made from an alcoholic fluid extract or tincture would be a decided improvement.—*Bull. Pharm.*, 1909, v. 23, p. 115.

Sargeant, F. Pilkington, asserts that the powdered bulb of *Urginea scilla* is used as a nonpoisonous preparation for the destruction of rats and mice.—*Pharm. J. Lond.*, 1909, v. 29 (83), p. 237. Also *Drug Topics*, New York, 1909, v. 24, p. 357.

An editorial (*Therap. Gaz.*, 1909, v. 33, pp. 493-495) discusses the comparative value of digitalis, squill, and strophanthus, and calls attention to a paper by Haynes on the influence of squill as a substitute for digitalis in heart failure.

Sharp, J. Gordon, finds that squill preparations are not so often inert as digitalis or strophanthus.—*Lancet*, 1909, v. 176, p. 1178.

#### SCOPOLA.

Schneider, Albert, points out that as far as known scopolia has not yet been grown in California, but sees no reason why it should not do well in the same localities as belladonna.—*Pacific Pharmacist*, 1909-10, v. 3, p. 193.

Wood (C. A.), Jackson, Schneideman, and Davis recommend that extract of scopolia be dropped from the U. S. P.—*J. Am. M. Ass.*, 1909, v. 53, p. 793.

Watanabe, Matajiro, reports a study of the constituents of *Scopolia japonica* herb. He finds that this herb contains mydriatic alkaloids by about 0.18 per cent in their total quantity, and that the alkaloids consist mainly of hyoscyamine associated with a small quantity of scopolamine and a minute quantity of atropine.—*Proc. VIIth Internat. Congress App. Chem., Sec. VIIb, Pharmacy*, 1909, London, 1910, pp. 134-135. See also *Pharm. J., Lond.*, 1909, v. 28 (82), p. 770.

Dohme and Engelhardt report that only 10, out of 14, samples of scopolia root came up to the strength required by the U. S. P. A drug containing 0.7 and more total alkaloids, formerly easily obtained, is very scarce at the present time. It has been claimed that the root of *Scopolia atropoides* is often adulterated with the Japanese root, which rarely contains more than 0.3 per cent total mydriatic alkaloids.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 718.

Caldwell, Paul, asserts that fluid extract of scopolia should be dropped as the alkaloid is used instead.—*Bull. Pharm.*, 1909, v. 23, p. 115.

Dunn, John A., recommends an ether-chloroform mixture for shaking out fluid extract of scopolia.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 952.

## SCOPOLAMINE HYDROBROMIDUM.

Francis, John M., in discussing the identity of hyoscine and scopolamine, suggests that in view of the fact that hyoscine is obtained from any or all of the solanaceous drugs, while scopolamine is obtained wholly from scopolia, it might be well to continue recognizing the distinction between the two.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 820.

Harbert, J. P., asserts that while scopolamine is more rapid in its action than hyoscine, as a mydriatic, it lasts for a shorter period, and is more toxic and depressing than atropine. Eclectic M. J., Cincin., 1909, v. 69, p. 191.

Wood, Casey A., calls attention to the fact that, by all chemists, hyoscine and scopolamine are considered identical. He controverts Harbert's statement that hyoscine is not likely to produce general toxic symptoms.—*Ibid.*, 1909, v. 69, p. 284.

Harbert, J. P., replies, maintaining that, therapeutically, hyoscine and scopolamine are separate and distinct drugs.—*Ibid.*, pp. 284-286.

Nicholson, C. M., presents a study of the action of scopolamine-morphine on the heart, liver, and kidneys, with a report of 650 cases in which he has used this method as a preliminary to general anaesthesia. He asserts that scopolamine by itself is very slightly toxic for animals, and says it does not produce any degeneration of the heart, liver, or kidneys in animals.—J. Am. M. Ass., 1909, v. 52, p. 1096-1099.

Seifert, Otto, quotes Roith, who found 18 cases of death in about 4,000 cases of scopolamine anaesthesia, reported in the literature. Among the contraindications for the use of scopolamine are circulatory disturbances, fever, acute somnolence, delirium tremens, and general weakness.—Apoth. Ztg., Berl., 1909, v. 24, p. 27.

Horsley, Victor, states that shock due to anaesthetics is caused by overdosage and is proportional to the amount administered. He thinks the best resuscitative method is to give oxygen. Surgeons will not agree to the use of scopolamine or morphine as a routine before operation.—Lancet, 1909, v. 176, p. 913.

Boldt, H. J., says that preliminary narcosis with scopolamine and morphine is considered risky and should not be used by any one except an expert anaesthetizer. In patients who have nephritis scopolamine-morphine narcosis serves the purpose, and, when these drugs are not followed by ether or chloroform, the narcosis seems free from risk.—J. Am. M. Ass., 1909, v. 52, p. 1614.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 308-313) reviews some of the recent literature relating to the use of scopolamine hydrobromide.

For additional references see Biochem. Centralbl. for 1908-9, Jahresb. u. Tier-Chem., Index Medicus, and J. Am. M. Ass.

**SCUTELLARIA.**

Capps, Pratt, McCrae, and Halsey recommend the deletion of scutellaria from the U. S. P.—*J. Am. M. Ass.*, 1909, v. 53, p. 792.

Kline, C. M., reports three samples of scutellaria not the official species. Another sample consisted of two species official and unofficial.—*Proc. N. W. D. A.*, 1909, p. 132.

Fyfe, John William, asserts that scutellaria was a favorite remedy with the early Eclectics, but is now seldom mentioned in our journals. The drug constitutes an excellent remedy in all cases in which irritability and debility of the nervous system are prominent features.—*Eclectic Rev.*, 1909, v. 12, pp. 116–117.

**SENEGA.**

Govaerts, H., asserts that the fluid extract of polygala prepared according to the method of the Ph. Belg. III, by extraction of the powder with 30 per cent alcohol, results in a potion which possesses a very disagreeable flavor. He suggests the preparation of the fluid extract from an infusion.—*Ann. d. pharm.*, Louvain, 1909, v. 15, p. 337.

Feldhaus, Julius, gives the specific gravity of commercial samples of fluid extract of senega, U. S. P., as varying from 1.002 to 1.015. The preparations with one exception were clear and transparent.—*Pharm. Ztg.*, Berl., 1909, v. 54, p. 58.

Beringer and Beringer report that neither the fluid extract of senega nor the sirup made therefrom has proved satisfactory in their experience. They suggest a formula for making the sirup direct from the powdered drug.—*Proc. New Jersey Pharm. Ass.*, 1909, p. 96.

Nitardy, F. W., suggests that in making sirup of senega the fluid extract be mixed with the water, the mixture filtered, and the sugar dissolved in the filtrate. He presents a formula modified along these lines.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1055.

Nixon, C. F., suggests a modified formula for sirup of senega, based on the official formula for sirup of ipecac.—*Apothecary*, 1909, v. 21, April, p. 18.

Cook and Ebner assert that the addition of a small amount of magnesium carbonate before filtering improves the finished preparation. They present a formula in which the process of making has been slightly modified.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1007.

Jones, Eli G., asserts that senega is indicated in cough with a great deal of mucous which seems to fill the chest with much rattling, wheezing, and difficult breathing, especially in old people.—*Eclectic Rev.*, 1909, v. 12, p. 361.

**SENNA.**

A committee of Section III, Second International Congress for the Suppression of Adulterations (Paris, 1909), proposes as the

definition of senna leaves: Leaflets of two species of *Cassia*: *C. acutifolia* Del., *C. angustifolia* Vahl, respectively known under the names of Palthe or Alexandria senna and India or Tinnevely senna, and gives their characters.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 353.

Schamelhout, A., says that the drug corresponding to these characters will conform to those of the Ph. Belg. He calls attention to the fact that with Alexandria senna there are sometimes mixed the leaflets of *C. obovata* Coll. The Ph. Belg. III does not admit the leaflets coming from this latter plant.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 169.

Holmes, E. M., in discussing the materia medica of Perak, points out that the sample of *Cassia angustifolia* Vahl appears to consist of Mecca senna, as the leaves are smaller than the Tinnevely sort, are of mixed sizes, and of inferior quality. It is labeled "Senna, a well-known purgative."—Proc. Am. Pharm. Ass., 1909, v. 57, p. 754.

Mittelbach, William, thinks that India senna should be designated as Tinnevely senna, the commercial name used by dealers, jobbers, and customers alike.—*Ibid.*, p. 814.

Gane, E. H., asserts that senna contains a large amount of ash: Tinnevely, from 10 to 14.5 per cent; 1 lot of Alexandria, 15.5 per cent.—*Ibid.*, p. 738.

Schamelhout, A., states that in addition to the kinds officinal in Belgium the Ph. Fr. V admits the folicles of Aleppo and Syria senna.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 77.

The Belgian inspectors of pharmacies report that the quality of senna is inferior. They find it blackish brown, much damaged, and moldy.—J. d. pharm. d'Anvers, 1909, v. 65, p. 552.

Fussell, M. H., thinks that compound infusion of senna and confection of senna should be relegated to the National Formulary.—Tr. Am. M. Ass. Sec. Pharm. & Therap., 1909, p. 205.

Hommell, P. E., discusses the senna sirups and suggests an improved formula. He thinks that the "sirupus senna mannatus," which appeared in Oldberg's unofficial (1881) pharmacopœia, should appear either in the U. S. P. or N. F.—Proc. New Jersey Pharm. Ass., 1909, p. 50. See also Western Druggist, Chicago, 1909, v. 31, pp. 398-399.

Nixon, C. F., outlines a modification of the official formula of sirup of senna in which the oil of coriander is directed to be triturated with precipitated calcium phosphate, the fluid extract added, with all of the water. The mixture is then allowed to stand for 24 hours before filtering into the sugar.—Apothecary, 1909, v. 21, April, p. 18.

Cook and Ebner point out that the present U. S. P. formula for sirup of senna gives an unsightly preparation, and suggest that the addition of a small amount of potassium carbonate will obviate the



difficulty. They present a formula in which the suggestion has been embodied.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1007.

Wolf, Carlton J., outlines the history of aromatic sirup of senna, N. F., and calls attention to some of the evident inconsistencies in the formula as it is now published. He presents a formula in which the quantity of sugar is reduced to 500 gm. for 1,000 cc. of sirup.—*Am. Druggist*, N. Y., 1909, v. 54, p. 6-7. Also *Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 25.

Diehl, C. L., reports from the committee on N. F. recommending a change in formula for aromatic sirup of senna.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1089.

He also reports from the committee on N. F. recommending the omission of the alcohol in compound sirup of senna. The oil should be dissolved in the fluid extracts, then 5 gm. of sodium borate and enough sirup to make 1,000 cc. added.—*Ibid.*, 57, p. 1090.

Magnus, R., discusses the action of senna and infusion of senna and their influence on digestion.—*Therap. Monatsh.*, Berl., 1909, v. 23, pp. 655-656.

Becker, Henry C., asserts that senna stimulates peristalsis and causes hyperemia of the intestinal coat, giving watery movements with griping. The cathartic action is given to the milk of nursing mothers. The compound licorice powder and the infusion are the most frequent forms of its administration.—*Merck's Arch.*, 1909, v. 11, p. 278.

#### SERPENTARIA.

Cook, E. Fullerton, reports that tincture of serpentaria forms a very slight precipitate, but is a satisfactory preparation.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1003.

#### SERA.

Anderson, John F., discusses the Federal control of the manufacture of therapeutic sera, and outlines the method that is being followed at the present time by the Hygienic Laboratory of the Public Health and Marine-Hospital Service.—*Am. J. Pharm.*, Phila., 1909, v. 81, pp. 184-186.

A correspondent calls attention to the revised regulations for the manufacture and importation of serums and vaccines.—*Oil, Paint, and Drug Reporter*, New York, 1909, v. 75, June 14, p. 9. See also *Ibid.*, June 21, p. 40.

A special committee reports to the Council on Pharmacy and Chemistry with reference to serums and vaccines, giving a list of establishments manufacturing serums, etc., licensed prior to July 15, 1908.—*J. Am. M. Ass.*, 1909, v. 53, pp. 961. Also *Am. Druggist*, N. Y., 1909, v. 55, p. 52; and *Oil, Paint, and Drug Reporter*, New York, 1909, v. 76, July 19, p. 40.

Melvin, A. D., reports on the work done by the Bureau of Animal Industry of the U. S. Dept. of Agriculture in connection with the supervision of vaccines, serums, and other preparations sold for the detection, prevention, or treatment of diseases of animals.—Ann. Rep. U. S. Dept. Agric. for 1909, 1910, p. 205.

Mohler and Eichorn discuss the need of controlling and standardizing the manufacture of veterinary tetanus antitoxin; and present the results of a number of experiments made to determine the antitoxin units present in commercial sera.—Bull. Bur. An. Ind., U. S. Dept. Agric., 1909, No. 121, pp. 22.

Piorkowski, M., discusses the sera and bacterial products marketed during the year 1908.—Ber. d. Pharm. Gesellsch., Berl., 1909, v. 19, pp. 174-179.

Patein, G., presents a chemical study of therapeutic serums.—J. d. pharm. et d. chim., Par., 1909, v. 30, pp. 537-546. Also Pharm. J., Lond., 1909, v. 28 (82), p. 869.

Düsterbehn reviews the articles on therapeutic sera included in Ph. Fr. V, and calls attention to some of the points of difference from the corresponding articles in the Ph. Germ. IV.—Apoth. Ztg., Berl., 1909, v. 24, pp. 227-228.

Rosenau and Anderson report some further studies upon the phenomenon of anaphylaxis.—Bull. Hyg. Lab. U. S. P. H. & M.-H. S., 1909, No. 50, pp. 49. Also Arch. Int. M., 1909, v. pp. 519-568.

McC Campbell, Eugene F., presents a note on anaphylaxis and immunity.—Med. Rec., N. Y., 1909, v. 75, pp. 555-559.

McCoy, G. W., gives a brief review of the subject of anaphylaxis.—J. Am. M. Ass., 1909, v. 52, p. 238.

Embleton and Shaw present a contribution on the increase of the hæmolytic power of serums resulting from the experimental introduction of organ extracts from other animals of the same species.—Brit. M. J., 1909, v. 2, pp. 1268-1271.

Leary, Th., reports on the employment of fresh animal blood serum in 20 cases of hæmorrhage. He finds it of great value not only in arresting the hæmorrhage but also in exerting a remarkable stimulant action on the heart.—Nouv. remèdes, 1909, v. 25, p. 100.

Robert-Simon and Choay make a communication on the preparation and employment of the extract of normal horse serum.—J. d. pharm. et d. chim., Par., 1909, v. 30, p. 479.

An editorial discusses serum therapy in its relation to Homœopathy, and points out that everything connected with serum therapy or vaccine treatment is as yet not to be indorsed and adopted by homœopathic schools, as we have not progressed so far as to know positively the exact rationale of the action of the serums and vaccines.—J. Am. Inst. Homœop., 1909, v. 1, pp. 392-393.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 1-84) presents a comprehensive review of serum therapy and bacterio-therapeutic preparations.—See also Index Medicus and J. Am. M. Ass.

#### ANTIGONOCOCCUS SERUM.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 43-44) reviews some of the recent literature relating to the use of gonococcus serum in man.

Thomas, Benjamin A., reviews the status of therapy by antigonococcus serum, gonococcus bacterin, and pyocyanus bacterin.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, pp. 104-109.

Eyre and Stewart discuss the treatment of gonococcus infections by vaccines, and draw a number of conclusions.—Lancet, 1909, v. 177, pp. 76-81.

#### ANTIMENINGOCOCCUS SERUM.

Flexner, Simon, contributes a brief note on the present status of the serum therapy of epidemic cerebrospinal meningitis, with tabulated statistics of cases analyzed according to age and according to day of injection.—J. Am. M. Ass., 1909, v. 53, pp. 1443.

Jobling, James W., discusses the standardization of antimeningitis serum, by a definite and suitable strength in opsonins; a minimum dilution activity of 1:5,000 dilution of the antiserum is proposed.—J. Exper. M., 1909, v. 11, pp. 614-621.

Flexner, Simon, reports on 1,000 case of epidemic cerebrospinal meningitis under serum treatment, giving the results of the serum treatment in Scotland and Ireland, and in some parts of this country.—J. Am. M. Ass., 1909, v. 52, p. 2016.

Rosewarne, D. D., reports a case of endemic cerebrospinal meningitis successfully treated with intraspinal injections of Flexner's serum.—Lancet, 1909, v. 117, p. 1280.

Churchill, Frank Spooner, discusses the serum treatment of epidemic meningitis. He asserts that it is useless to give the serum subcutaneously. It is specific and of value in meningococcic meningitis only.—J. Am. M. Ass., 1909, v. 53, pp. 841-844.

Fisher, Louis, presents a paper on cerebrospinal meningitis, clinical observations, and serum treatment.—New York M. J., 1909, v. 90, pp. 1201-1206.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 54-57) discusses Jochmann's meningococcus serum and its use.

For additional references see Index Medicus and J. Am. M. Ass.

#### ANTIPNEUMOCOCCUS SERUM.

Hektoen, Weaver, and Tunnicliff report their inability to demonstrate antibodies in antipneumococcus serum by any method em-

ployed. It is their belief that the claims for the usefulness of antipneumococcus serum rest on impressions from results in clinical cases in man and have in most cases no foundation whatever in experimental tests.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 102.

Landmann, G. (*Deutsche med. Wchnschr.*, 1908, v. 34, No. 48), contributes a paper on antipneumococcus serum.—J. Am. M. Ass., 1909, v. 52, p. 255.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 60-63) calls attention to some of the recent literature relating to pneumococcus serum.

Willcox and Morgan discuss the treatment of pneumonia by inoculation, with a report of 25 cases.—Brit. M. J., 1909, v. 2, pp. 1050-1054.

Leary, Timothy, discusses the vaccine treatment of lobar pneumonia, which he thinks should have wider application.—Boston M. & S. J. 1909, v. 161, pp 714-718.

#### ANTISTREPTOCOCCUS SERUM.

Hektoen, Weaver, and Tunnicliff report their inability to demonstrate streptococcus opsonins in any of the antistreptococcus serums tested. They conclude that the claims for the usefulness of antistreptococcus serum rest on impressions from results in clinical cases in man and have in most cases no foundation whatever in experimental tests.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 102.

Fagaines, H. M., reports an experience with antistreptococcus serum.—Therap. Gaz., 1909, v. 33, pp. 607-608.

Nunez, Enrique, contributes a note on the employment of antistreptococcic sera in metrorrhagias.—Rev. Med. Cir., Habana, 1909, v. 14, pp. 171-174.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 17-24) presents a review of recent literature relating to the production and use of antistreptococcic serum.

#### ANTITYPHOID SERUM.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 73-76), in a review of the literature relating to typhoid fever, states that while the serum therapy of enteric fever offers more prospect of success than does the antitoxin treatment of cholera, for enteric fever runs a much slower course, it must be at once stated that the treatment of typhoid fever with curative serum has not yet become firmly established.

Hoffman, W. (*Deutsche med. Wchnschr.*, 1909, v. 35, No. 13), discusses tests of antityphoid serum.—J. Am. M. Ass., 1909, v. 52, p. 1551.

Semple, D., presents a preliminary note on the vaccine therapy of enteric fever, with numerous charts and tabulations.—*Lancet*, 1909, v. 176, pp. 1668-1675.

Irwin and Houston report a case of a "typhoid carrier," successfully treated by the inoculation of typhoid vaccine.—*Ibid.*, v. 176, pp. 311-313.

Watters and Eaton present a paper on the vaccine treatment of typhoid fever, with reports and temperature charts of 30 cases.—*Med. Rec.*, N. Y., 1909, v. 75, pp. 93-98.

Stone, Willard J., discusses typhoid immunity and antityphoid inoculation, with some account of the technique and condensed statistics of the work done in the British Army and the adoption of the procedure in the United States Army.—*J. Am. M. Ass.*, 1909, v. 53, pp. 1253-1256.

Shoemaker, Harlan, reports some observations on prophylactic inoculations against typhoid fever. He concludes that the evidence of bacteriolytic and bactericidal activity higher than the normal, and the presence of agglutinin, can be obtained from the serum of those who have been inoculated. The immunity to typhoid conferred upon those officers and men of the Seventeenth Lancers, inoculated, would seem to confirm the laboratory finding.—*N. York M. J.*, 1909, v. 89, p. 265.

#### ANTIRABIC TREATMENT.

Marie, A., discusses the antirabic properties of the cerebral substance.—*Compt. rend. Acad. d. sc. Par.*, 1909, v. 149, pp. 234-236.

Jones, W. A., reports two cases of probable spinal cord lesion following the Pasteur treatment.—*J. Am. M. Ass.*, 1909, v. 53, pp. 1626-1628.

Proescher, Frederick, describes a danger free method of using freshly prepared virus (*virus fixé*) from the brain of the hydrophobic rabbit.—*N. York M. J.*, 1909, v. 90, pp. 688-691.

Babes, V., reports observations on the cause of the paralysis in the course of antirabic treatment.—*Compt. rend. Soc. de Biol.*, 1909, v. 66, pp. 49-51.

#### ANTIVENINS.

Noguchi, Hideyo, in discussing different antivenins, calls attention to the properties of venoms and the variations and properties of antivenins. He points out that at the present time there are seven different specific antivenins produced: Cobra antivenin (Calmette, Lamb), *Crotalus* antivenin (Flexner and Noguchi, McFarland), Moccasin antivenin (Noguchi), *Lachesis* antivenin (Brazil), *Crotalus terrificus* antivenin (Brazil), *Trimeresurus* antivenin (Kitashima, Ishizaka), Daboia antivenin (Lamb).—*Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, pp. 150-155.

Arnold, W. F., reports a case of viperine snake bite (of undetermined kind) treated with Calmette's sérum antivénimeux (or antivenin).—*Am. J. M. Sc.*, v. 138, pp. 68–70.

Mays, Thomas J., discusses the therapeutic action of rattlesnake venom in pulmonary consumption, in acute and chronic bronchitis, asthma, etc., and in some well-recognized neuroses, with a report of 32 cases.—*Boston M. & S. J.*, 1909, v. 160, pp. 481–485.

Rosanoff, A. J., thinks the Much-Holzmann reaction, based upon a comparatively high degree of the power of inhibiting the hæmolytic action of cobra venom on human-blood corpuscles, is not strictly specific for any psychosis.—*Arch. Int. M.*, 1909, v. 4, pp. 405–408.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 63–66) discusses the development of snake poison serums, and calls attention to some of the recent literature relating to the use of these substances.

#### CANCER.

An editorial (*Lancet*, 1909, v. 177, p. 1079) discusses the enzyme treatment of cancer.

Pfeiffer, H. (*Wien. klin. Wchnschr.*, 1909, v. 22, no. 36), gives the details of his technique for the anaphylactic sero-reaction with cancer. His experience confirms its differential importance.—*J. Am. M. Ass.*, 1909, v. 53, p. 1343.

Hort, E. C., contributes a paper on the diagnosis of cancer by examination of the blood (antitryptic content).—*Brit. M. J.*, 1909, v. 2, pp. 966–969.

Blumgarten, A. S., discusses the hæmolytic properties of cancer serum.—*Med. Rec.*, N. Y., 1909, v. 75, p. 61.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 53–54) reviews some of the recent literature relating to the use of cancer serum.

#### SYPHILIS.

Fox, Howard, discusses the principles and technique of the Wassermann reaction and its modifications, with a tabular review of 100 cases.—*Med. Rec.*, N. Y., 1909, v. 75, pp. 421–428.

White and Ludlum publish their studies with the Wassermann reaction.—*Ibid.*, 1909, v. 76, pp. 1073–1075.

Smith and Candler make a contribution on the Wassermann reaction in general paralysis of the insane.—*Brit. M. J.*, 1909, v. 2, pp. 198–201.

Swift, Homer F., reports a comparative study of serum diagnosis in syphilis and on the use of active and inactive serum in the complement deviation test for syphilis.—*Arch. Int. M.*, 1909, v. 4, pp. 376–404, 494–501.

Fox, Howard, presents a note on the Wassermann reaction (Noguchi modification) in pellagra, with a report of 30 cases.—N. York M. J., 1909, v. 90, pp. 1206-1208.

Noguchi, Hideyo, discusses the serodiagnosis of syphilis, with a tabulated statement of the results obtained by his method.—J. Am. M. Ass., 1909, v. 53, p. 934. See also pp. 1532-1535, and J. Exper. M., 1909, v. 11, pp. 392-401.

Gay and Fitzgerald discuss the serum diagnosis of syphilis, giving tabulated summaries of their results with the Noguchi, Wassermann, and euglobulin methods.—Boston M. & S. J., 1909, v. 160, pp. 157-161.

Ballenger, Edgar G., describes a new method of staining motile organisms, renal tube casts, and fixed smears of *Spirochæta pallida*, using a 1 per cent solution of dahlia.—J. Am. M. Ass., 1909, v. 53, p. 1635.

An editorial (Brit. M. J., 1909, v. 2, p. 1086) reviews the question of the serum test for syphilis.

Bassett-Smith, P. W., presents a contribution on the diagnosis of syphilis by laboratory methods.—*Ibid.*, pp. 377-380. See also, p. 575.

For additional references see Index Medicus and J. Am. M. Ass.

#### SERUM ANTIDIPHTHERICUM.

Smith, Howard H., presents a popular discussion of the theory of diphtheria antitoxin, its method of manufacture, and its possible uses.—Apothecary, 1909, March, pp. 24-25.

Rosenau, M. J., thinks that the benefits bestowed by the introduction of sera must be classed among the greatest that have been secured through medical science, and rank well with such epoch-making advances as vaccination, anæsthesia and antiseptis.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 86.

Park, William H., discusses antidiphtheritic serum and antidiphtheritic globulin solutions. He believes that the globulin preparations contain all the important curative substances of the whole antidiphtheritic serum.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, pp. 81-85.

An editorial expresses the belief that the contention that antitoxin is less perishable than many fluid extracts has been clearly established.—New Idea, 1909, v. 31, p. 76.

Marique, Albert, reports observations on the modifications of the blood in the guinea pig under the influence of diphtheria antitoxin and antidiphtheric serum.—Arch. internat. d. pharmacod. et d. therap., 1909, v. 19, pp. 449-496.

Chase, Carroll, in discussing diphtheria, asserts that the actual treatment is almost summed up in one word "antitoxin," and is

concisely summed up by the statement, "Use antitoxin early and freely, and guard the heart."—*Merck's Arch.* 1909, v. 11, pp. 139-142.

A news item discusses the proposed use of antidiphtheric serum in chlorosis.—*Pharm. J., Lond.*, 1909, v. 28 (82), p. 781.

Fernandez, F. M., contributes a brief note on the nonspecific uses of antidiphtheric serum.—*Med. Rec., N. Y.*, 1909, v. 76, p. 774.

Smith, Theobald, discusses active immunity produced by so-called balanced or neutral mixtures of diphtheria toxin and antitoxin, in relation to the possibility of conferring a relatively high degree of active immunity lasting at least several years, without any appreciable disturbances of health.—*J. Exper. M.* 1909, v. 11, pp. 241-256.

Butler, H. O., reports a case of transient ataxy following diphtheria, in which 26,000 units had been injected. He has, however, noticed an ataxic gait in children who had not more than 6,000 units.—*Lancet*, 1909, v. 177, p. 532.

Bacon and Williams report on a case in which dyspnoea and urticaria followed the injection of antitoxin in diphtheria. The untoward effects seem to have been overcome by the administration of calcium lactate.—*J. Am. M. Ass.*, 1909, v. 52, p. 1181.

Power, H. d'Arcy, contributes an interesting note on serum sickness in his own person, following an immunizing injection of antitoxin of 1,000 units.—*Ibid.*, p. 1514.

The London Correspondent reports the sudden death of a girl, aged 18, after the prophylactic injection of diphtheria antitoxin.—*Ibid.*, p. 223.

Gillete, H. F., reports on untoward results from diphtheria antitoxin, with special reference to its relation to asthma, and points out that there are many problems in connection with the administration of sera which are as yet unsolved, and that sera themselves are still in the experimental stage of their use.—*Therap. Gaz.*, 1909, v. 33, pp. 159-162.

Weaver, George H., discusses serum disease and the precautions to be observed in the use of antidiphtheric serum. The rare occurrence of unfavorable results from the use of the serum, he thinks, should not deter the physician from urging its administration in every case of diphtheria.—*Arch. Int. M.*, 1909, v. 3, pp. 485-513.

Warden, A. A., urges extreme care in the use of antitoxin and the limitation of its employment to cases in which the diphtheritic poison is evident or suspected.—*Lancet*, 1909, v. 177, p. 45.

Jones, C. P., asserts that he has used antitoxin for 14 years and has yet to see the first case of heart failure. He thinks that, used in every suspicious case, before a clinical diagnosis can be made, the death rate in diphtheria will be almost nothing.—*Eclectic M. J., Cincin.*, 1909, v. 69, pp. 243-244.



Meyer, Fritz, discusses the treatment of diphtheria, and presents some observations on the action, use, and dose of the curative serum.—Arch. f. exper. Path. u. Pharmacol., Leipz., 1908-9, v. 60, pp. 208-232.

Morgenroth, J., discusses the serum treatment of diphtheria and the relation of diphtheria toxin and antitoxin.—Therap. Monatsh., Berl., 1909, v. 23, pp. 6-12.

Rosenau, M. J., calls attention to the necessity for the prompt administration of antidiphtheric serum. The unfavorable statistics, on analysis, were shown to be made up from hospital cases in which the administration of the remedy had been too long delayed.—J. Am. M. Ass., 1909, v. 52, p. 794.

Stevens, A. F., asserts that blood serum from an infected horse will not cure all cases of diphtheria, and that he has proven in his own practice that it will sometimes kill.—Eclectic M. J., Cincin., 1909, v. 69, p. 158.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 35-41) presents a view of recent literature relating to diphtheria antitoxin, and states that, while the antitoxin has been used with success prophylactically, its curative application is practically the only one in general use.

A number of additional references on antidiphtheric serum, diphtheria toxin, and anaphylaxis will be found in Jahresb. u. Tier-Chem., 1909, Wiesb., 1910; Index Medicus and J. Am. M. Ass.

#### SERUM ANTITETANICUM.

Anderson, John F., discusses some of the reasons why tetanus antitoxin should be in the U. S. P. He points out that this antitoxin is in the Belgian, French, and Swiss pharmacopœias, and should certainly be included in the next revision of the U. S. P.—Am. J. Pharm., Phila., 1909, v. 81, pp. 429-431; also Proc. Am. Pharm. Ass., 1909, v. 57, pp. 786-788.

The following resolution indorsing the introduction of tetanus antitoxin in the U. S. P. was adopted by the Section on Scientific Papers of the American Pharmaceutical Association:

Whereas tetanus antitoxin has come to be recognized as a valuable addition to the *materia medica*; and

Whereas one of the objects of this association is to foster uniformity in medicaments by establishing standards for strength and suggesting methods for preserving: Now, therefore be it

*Resolved*, That the Section on Scientific Papers suggests that the American Pharmaceutical Association, in general meeting assembled, instruct its delegates to the forthcoming Pharmacopœial Revision Convention to ask for the admission of a standard for tetanus antitoxin in the next revision of the Pharmacopœia of the United States.—*Ibid.*, pp. 822-823.

An editorial discusses the administration of antitetanic serum to animals, and concludes that while preventive serotherapy of lockjaw is good it requires to be applied with method and severity. It will not replace the work of the surgeon, but simply tends to neutralize the toxins, while waiting for the realization of complete asepsy of the infecting wound.—*Am. Vet. Rev.*, 1909, v. 35, pp. 377-378.

Ryder, J. Elmer, reports the administration of large doses of antitetanic serum to a horse, followed by recovery; he believes that the point upon which the successful result of treatment depends is the largeness of the doses used. In the average sized horse the first injection should be from 90 to 120 cc. and repeated in six hours if necessary.—*Ibid.*, pp. 64-65.

Mohler and Eichhorn discuss the need of controlling and standardizing the manufacture of veterinary tetanus antitoxin.—*Bull. Bur. An. Ind.*, U. S. Dept. Agric., 1909, No. 121, p. 22.

Anderson, John F., describes antitetanic serum, and calls attention to differences in strength of this serum existing before the adoption of the American unit. In conclusion he enumerates some of the advantages that have come from the Federal control of therapeutic serums.—*Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, pp. 86-90.

v. Tappeiner, H., in a discussion of photodynamic phenomena reports that tetanus antitoxin is so modified by 0.05 per cent of eosin in dispersed light that the fatal dose of tetanus toxin requires 67 times the normal equivalent of the antitoxin.—*Ergeb. d. Physiol.*, 1909, v. 8, p. 715.

Stimson, C. M., reports a case of tetanus with recovery following injection of antitetanic serum into the sciatic nerve.—*N. York M. J.*, 1909, v. 90, p. 592.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 67-70) reviews some of the recent literature relating to tetanus serum, and states that, although cases have occurred in which the serum has failed without any tangible explanation, most cases of failure are certainly due to the fact that the serum treatment was commenced too late.

For additional references see *Index Medicus* and *J. Am. M. Ass.*

#### SEVUM PRÆPARATUM.

Mittelbach, William, thinks that "præparatum" should be cut off the name "Sevum præparatum." Kept in a cool place, as all fats should be kept, prepared suet is a useful article.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 816.

Bomer, A., in a contribution to our knowledge of the glycerides of fats and oils discusses mixed glycerides of palmitic and stearic acids present in tallow.—*Ztschr. f. Unters. Nahr. u. Genussm.*, 1909, v. 17, pp. 353-396.

## SINAPIS.

Woods, Charles D., defines ground mustard as a powder made from mustard seed, with or without the removal of the hulls and a portion of the fixed oil, which contains not more than 2.5 per cent of starch and not more than 8 per cent of total ash.—Rep. Maine Agric. Exper. Sta. (1909), 1910, App. p. 118.

The Catalogue of Definitions adopted by the International Congress for the Suppression of Adulteration (Geneva, 1908) describes mustard as the product obtained by crushing the seeds of black mustard (*Brassica nigra*), brown (*Brassica juncea*), and white (*Sinapis alba*), or of their mixture. Powdered mustard is the starch of the above seeds bolted or not.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 237.

Schamelhout, A., states that black mustard seeds should, after trituration and maceration in water, yield at least 0.6 per cent allyliso-thiocyanate.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 338.

Caesar & Loretz (Geschäfts-Ber., 1909, p. 106) describe the Kuntze modification of the Ph. Germ. IV method of assay for mustard.

Kurbitz, M., outlines a method for the valuation of mustard and presents some analytical data on powdered mustard from which he concludes that the commercially available powdered mustard is frequently of inferior quality and likely to be adulterated. He suggests the addition of a maximum ash content to the pharmacopœial requirements.—Apoth. Ztg., Berl., 1909, v. 24, p. 160.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 13) report on four samples of ground mustard: Ash, 3.77 to 4.53 per cent; fixed oil, 34.51 to 37.42 per cent.

A number of articles on the adulterants used in mustard will be found in Ann. d. Falsif., 1909, v. 2.

The Belgian inspectors of pharmacies report mustard as not always having the composition required by the pharmacopœia, it frequently contains only white mustard.—J. d. pharm. d'Anvers, 1909, v. 65, p. 552.

*Table showing number of samples of ground mustard found adulterated by various analysts.*

| Reporters.                | Samples—  |           | References.  |
|---------------------------|-----------|-----------|--|
|                           | Examined. | Rejected. |  |
| Hill, Edward C. ....      | 1         | 1         | Bull. Colorado Bd. Health, 1909, v. 9, No. 4, p. 4     |
| Lynch, R. L. ....         | 42        | 2         | Rep. District of Columbia Health Off. (1909-10) p. 51. |
| Balrd, J. W. ....         | 15        | 1         | Proc. Massachusetts Pharm. Ass., 1909, p. 122.         |
| Halverson, J. O. ....     | 2         | 1         | Rep. Food & Drug. Com. Missouri, 1909, p. 35.          |
| Fitz-Randolph, R. B. .... | 257       | 24        | Rep. New Jersey Bd. Health (1909), 1910, p. 196.       |
| Dunlap, Renick W. ....    | 5         | 2         | Rep. Ohio Dairy & Food Com., 1909, p. 61.              |

Mittelbach, William, thinks that the formula for mustard paper is easily followed.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 816.

Hersfeld, A. A., describes his method of applying mustard packs in the capillary bronchitis and bronchopneumonia in children; he finds them surprisingly rapid in effect, light in weight, easily applied, inexpensive, and clean.—*J. Am. M. Ass.*, 1909, v. 52, p. 135.

#### **SODII ARSENAS EXSICCATUS.**

The Belgian inspectors of pharmacies report that if all the pharmacists keep the official sodium arsenate, they sometimes neglect to employ it, as the new bottle is frequently seen still intact beside the old dehydrated salt which they continue to use.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 585.

Schamelhout, A., notes that the value of this product is very small, so that the pharmacist who does not wish to convert the dried into the crystallized salt should sacrifice it; it would not be a very great loss. Nevertheless, he may make it into a 10 per cent trituration with sugar of milk by taking into account that 59.6 gm. of the dried arsenate corresponds to 100 gm. of the arsenate at present official.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 235.

#### **SODII BENZOAS.**

Hillyer, William E., describes a method for detecting sodium benzoate in ketchups or other food materials, and presents a table showing the results obtained in developing this method.—*J. Ind. Eng. Chem.*, 1909, v. 1, pp. 538–540.

Dunbar, P. B., in a report as associate referee on preservatives, discusses the determination of sodium benzoate in ketchup by various methods.—*Proc. Ass. Off. Agric. Chem.*, 1909, 26th Ann. Conv., pp. 120–122 (*Bull. Bur. Chem., U. S. Dept. Agric.*, 1910, No. 132).

Woods, Charles D., states that the use of benzoate of soda as a preservative in foods is for the present allowed in interstate trade under the national food and drugs law, and is also permitted in Maine, in quantities not exceeding 0.1 per cent and in those foods in which generally heretofore it has been used.—*Rep. Maine Agric. Exper. Sta.* (1909), 1910, App. p. 11.

An editorial (*Critic & Guide*, 1909, v. 12, pp. 37–38) comments on the report of the Referee Board of Consulting Scientific Experts regarding the use of sodium benzoate in food products, and expresses the belief that the small amount of sodium benzoate generally used as a preservative is not injurious to health.

An editorial (*Drug Topics*, New York, 1909, v. 24, p. 18; see also pp. 66, 258) comments on the report of the Referee Board, appointed by the President to determine whether sodium benzoate used

in food as a preservative is harmful, and expresses the belief that the report will generally be accepted as authoritative and based on sound scientific reasoning.

An editorial (*J. Am. M. Ass.*, 1909, v. 52, p. 562) asserts that to assume from the findings of the Referee Board that the use of sodium benzoate in foodstuffs is therefore beyond criticism is absolutely unwarranted, and there is little doubt but that the board itself would be the last body to sanction such an assumption. See also *Ibid.*, pp. 787, 905, 978.

Lloyd, John Uri, comments on the use of sodium benzoate as a preservative and expresses the belief that the users of sodium benzoate should be required to state prominently on the label not only the amount but also the origin of the sodium benzoate employed.—*Drug. Circ.*, N. Y., 1909, v. 53, p. 138.

#### SODII BICARBONAS.

Peniakoff, D., in a French patent specification, outlines the manufacture of sodium bicarbonate by passing carbon dioxide into a strong solution of sodium carbonate in the presence of a small quantity of ammonia or ammonium carbonate.—*J. Soc. Chem., Ind.*, 1909, v. 28, p. 1034.

The White Cross Congress held in Paris in October, 1909, recommends that sodium bicarbonate should contain not more than 2 per cent of anhydrous sodium carbonate. It may contain traces of chlorides, of which the sodium chloride should not exceed 0.10 per cent. It should be free from ammonia salts, etc.—*Chem. & Drug.*, Lond., 1909, v. 75, p. 682. See also *Bull. sc. pharmacol.*, Par., 1909, v. 16, p. 424.

Umney, J. C., points out that a definite limit for chloride might be set at 0.1 per cent sodium chloride, and it should be required to be free from arsenic.—*Chem. & Drug.*, 1909, v. 75, p. 581.

Schamelhout, A., says that the Ph. Belg. does not admit, and with reason, the presence of ammoniacal salts.—*Bull. Soc. roy. d. pharm.*, Brux., 1909, v. 53, p. 180.

A committee of the Syndicat général de la Droguerie française asks that traces of chloride and of neutral carbonate be tolerated in the acid sodium carbonate.—*Bull. sc. pharmacol.*, Par., 1909, v. 16, p. 289.

Soury (*Compt. rend.*, 1908, 147, 1296–1299) points out that in the dissociation of sodium bicarbonate not only carbon dioxide but also water is evolved, and asserts that as there are three constituents concerned there must be four phases if the system is to have but one degree of freedom.—*J. Soc. Chem., Ind.*, 1909, v. 28, p. 20.

Löwinger, Berthold, outlines a method for the rapid estimation of bicarbonate in addition to the soda.—*Chem. Ztg. Cöthen*, 1909, v. 33, p. 1174.

Emery, W. O., in a report on cooperative work on headache mixtures, outlines a method for determining sodium bicarbonate in mixtures with caffeine and acetanilide.—*Am. J. Pharm., Phila.*, 1909, v. 81, pp. 480-484.

Arny, H. V., reports nine samples of sodium bicarbonate examined, which, with the exception of one, were up to the U. S. P. requirements.—*Proc. Ohio Pharm. Ass.*, 1909, p. 66.

The Belgian inspectors of pharmacies report sodium bicarbonate debased by the neutral carbonate and contaminated by traces of ammonia.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 585.

Schamelhout, A., notes that the Ph. Belg. allows about 2 per cent of the neutral carbonate. This product should be kept in well-stoppered bottles.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 236.

Smith, Eustace, discussing the use of alkalis in practical medicine, reviews at some length the therapeutic applications of sodium bicarbonate.—*Brit. M. J.*, 1909, v. 1, p. 263. See also 371 and 438.

Lees, David B., asserts that he has never seen any marked increase in the anæmia in cases of acute rheumatism treated by large doses of bicarbonate and salicylate. In fact, the more effectively the rheumatism is treated, the less is the degree of anæmia as of other rheumatic symptoms.—*Ibid.*, p. 371.

Smith, Eustace, replies to Lees and questions the assumption that chorea is invariably associated with rheumatic dyscrasia.—*Ibid.*, p. 438.

Hale, Worth, reports observations on the effects of caffeine and sodium bicarbonate upon the toxicity of acetanilide, and concludes that sodium bicarbonate lessens the toxicity of acetanilide, both in its action upon the heart and upon the intact animal, increasing both the rate and the efficiency of the heart and in the intact animal increasing the duration of the life, or making the use of a larger dose of acetanilide necessary to cause death.—*J. Pharm. & Exper. Therap.*, 1909-10, v. 1, pp. 185-197. See also *Bull. Hyg. Lab. U. S. P. H. & M.-H. S.*, 1909, No. 53, pp. 57.

#### SODII BISULPHIS.

Kann, Robert, describes and illustrates the process employed and the apparatus necessary for the manufacture of bisulphite of soda.—*Chem. Eng.*, 1909, v. 9, pp. 55-57.

#### SODII BORAS.

An unsigned article describes, with illustrations, the borate fields of Chile.—*Chem. Trade J.*, 1909, v. 45, pp. 380-382.

The committee of reference in pharmacy recommends that a test for lead in borax be provided (5 parts per million).—*Chem. & Drug.*, Lond., 1909, v. 74, p. 290.

A committee of the Syndicat général de la Droguerie française asks that traces of chlorides and sulphates be tolerated in sodium borate.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 289.

Lythgoe, Hermann C., reports that of nine samples of borax examined, two were adulterated.—Rep. Massachusetts B'd. Health (1909), 1910, p. 476.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 15) report on 46 consignments of borax. The only impurities of note were: arsenium from 4 to 8 parts per million, and lead 10 parts per million and below to 20 parts per million. There were occasional faint traces of suphate and chloride.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 28) note very considerable improvement in borax with respect to lead and arsenic. In no instance has the proportion of the latter exceeded 4 parts per million.

Boudet, L., presents a formula for tablets of sodium borate.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 659.

Voiry, R. (J. pharm. chim. 30, 105-107), gives directions for making the sodium borate tablets to comply fully with the French Codex for 1908.—Chem. Abstr. Am. Chem. Soc., 1910, v. 4, p. 234.

Sargeant, F. Pilkington, asserts that sodium baborate is used in preparations for the destruction of beetles.—Pharm. J., Lond., 1909, v. 83, p. 237.

#### **SODII BROMIDUM.**

Bachman, Gustave, reports that in the sodium bromide examined he found 95.5 per cent minimum and 97.2 per cent maximum.—Proc. Minnesota Pharm. Ass., 1909, p. 70.

Ellingwood, Finley, asserts that sodium bromide has but little influence upon the stomach or intestinal tract. When needed for nervous irritation where these organs are weak this agent is preferable. It should be selected usually for infants, and for those aged and feeble.—Eclectic Rev., 1909, v. 12, p. 18.

Bönniger, M., reports some further studies on the substitution of bromine for chlorine in the animal organism.—Ztschr. f. exper. Path. u. Therap., 1909-10, v. 7, pp. 556-560.

#### **SODII CARBONAS MONOHYDRATUS.**

Mason, Wm., reviews the history of ammonia soda, and discusses the theory of the process.—Chem. Ztg. Cöthen, 1909, v. 33, pp. 19-20. See also Chem. Eng., 1909, v. 9, pp. 93-96.

Flamand, J., discusses the detection of small quantities of sodium carbonate in water.—Bull. Soc. chim., belg., 1909, v. 23, pp. 296-299.

Jones, Bernard Mouat, reports observations on the spontaneous crystallization of solutions of sodium carbonate and sodium thiosul-

phate. He concludes that supersaturated solutions of sodium carbonate, freed from crystal nuclei, crystallize at definite temperatures on being subjected to mechanical friction.—*J. Chem. Soc., Lond.*, 1909, v. 95, pp. 1672-1683.

The White Cross Congress held in Paris in October, 1909, suggests a standard of at least 32.44 per cent of pure  $\text{Na}_2\text{CO}_3$  for soda crystals.—*Chem. & Drug., Lond.*, 1909, v. 75, p. 682.

LaWall, Charles H., points out that dried and powdered sodium carbonate is usually in compliance with the U. S. P. requirements for an exsiccated salt.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 370.

Patch, E. L., reports on dried sodium carbonate from 77.93 to 96.09 per cent pure.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 738.

### SODII CHLORIDUM.

Harris, Maury, and Reinecke (*Geol. Survey, Louisiana, Bull.* 7, 210 pp.; maps) present a report containing brief notes and references to all the known salt deposits of the world.—*Chem. Abstr. Am. Chem. Soc.*, 1909, v. 3, p. 1630.

Grimsley, G. P., discusses the technology of salt manufacture, and describes the processes employed under the following heads: (1) Mining of rock salt, (2) solar evaporation, (3) direct fire evaporation, (4) steam evaporation, (5) vacuum pan evaporation.—*Chem. Eng.*, 1909, v. 10, pp. 109-113.

Koch, Felix J., presents an interesting note on the whence of sea salt, and describes the production of sea salt in the district of Austria in which Capo d'Istria lies.—*Merck's Rep.*, 1909, v. 18, pp. 286-287.

Woods, Charles D., defines table salt, dairy salt, as fine-grained crystalline salt containing on a water-free basis not more than 1.4 per cent of calcium sulphate ( $\text{CaSO}_4$ ), not more than 0.5 per cent of calcium and magnesium chlorides ( $\text{CaCl}_2$  and  $\text{MgCl}_2$ ), nor more than 0.1 per cent of matters insoluble in water.—*Rep. Maine Agric. Exper. Sta.* (1909), 1910, App., p. 130.

Wilbert, M. I., points out that the need for at least some consideration of the nomenclature employed in foreign countries is well illustrated in the variation of the Latin title of such a widely used article as common salt: Sodium chloridum (U. S. P. VIII); this is variously designated Natrium chloratum (Ph. Germ. IV); Chloretum natrium (Ph. Svec. VIII); and Chlorurum sodicum (Ph. Hisp. VII).—*Merck's Rep.*, 1909, v. 18, p. 207.

Emich, F., in discussing the boiling point of sodium chloride, outlines the method of observation employed by him and asserts that the boiling point determined by him is approximately  $1,750^\circ \text{C}$ ., therefore considerably lower than that formerly reported by Nernst, approximately  $2,000^\circ \text{C}$ .—*Pharm. Post., Wien.*, 1909, v. 42, p. 858.



Bachman, Gustave, reports sodium chloride from 98.18 to 98.56 per cent pure.—*Proc. Minnesota Pharm. Ass.*, 1909, p. 70.

Kreis, H., reports that a sample of table salt examined by him contained but 95.51 per cent sodium chloride, 1.36 per cent sodium sulphate, and 2.92 per cent potassium phosphate, the object of the latter contamination evidently being to prevent the salt from lumping.—*Schweiz. Wehnschr. f. Chem. u. Pharm.*, Zürich., 1909, v. 47, p. 397.

von der Velder, Reinhard, reports a comprehensive study on the influence of halogen salts on the blood as a contribution to the knowledge of the hæmostyptic action of bromides and chlorides.—*Ztschr. f. exper. Path. u. Therap.*, 1909-10, v. 7, pp. 290-325.

Joseph and Meltzer report observations on the comparative toxicity of the chlorides of magnesium, calcium, potassium and sodium.—*J. Pharm. & Exper. Therap.*, 1909-10, v. 1, pp. 1-26.

Wood, Horatio, jr., discusses the therapeutic value of physiologic salt solution. He asserts that in cases of circulatory weakness, due to hæmorrhage or shock or other vasomotor conditions, the injection of salt solution is a valuable mode of treatment.—*J. Am. M. Ass.*, 1909, v. 52, p. 1277.

Additional references on the chemistry, pharmacology, and uses of sodium chloride will be found in *Chem. Abstr.*, *Am. Chem. Soc.*, *Index Medicus*, and *J. Am. M. Ass.*

#### **SODIUM CITRAS.**

An abstract calls attention to the use of sodium citrates as an addition to cow's milk for infant feeding.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 363.

#### **SODII HYDROXIDUM.**

The White Cross Congress held in Paris in October, 1909, presents the following description for caustic soda: Solid white mass, very hygroscopic, soluble in distilled water, giving a clear and almost colorless solution. Should be sold with indication of (or label should state) strength in NaOH; in absence of such indication should contain at least 75 per cent of NaOH. Should not contain more than 4 per cent of sodium carbonate. May contain small quantities of chlorides and sulphates, and traces of alumina, lime, metals, sulphides, and cyanides.—*Chem. & Drug.*, Lond., 1909, v. 75, p. 682.

Umney, J. C., points out that here of course one can quite well assume that a commercial standard is necessary, but it is an article sold according to various strengths, and therefore no minimum such as is stated (80 [75] per cent) is necessary.—*Ibid.*, p. 581.

Pearson, W. A., found one lot of sodium hydroxide which contained an excess of silicate, another lot an excess of iron.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 181.

Scoville, W. L., reports sodium hydroxide from 89.3 to 90.77 per cent pure.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 788.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 51) detected 10 parts of arsenic per million in one sample of the stick variety of sodium hydrate. Other samples contained less than 4 parts per million.

#### **SODII HYPOPHOSPHIS.**

A committee of the *Syndicat général de la Droguerie française* asks that the presence of phosphites and carbonates be tolerated in sodium hypophosphite.—*Bull. sc. pharmacol., Par.*, 1909, v. 16, p. 289.

#### **SODII IODIDUM.**

The Belgian inspectors of pharmacies report that they still find the hydrated, nonofficial sodium iodid.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 588. See also *Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 260.

Krym, W. S. (*J. Russ. Phys. Chem. Soc.*, 1909, v. 41, 382–385) has determined the solubility of silver iodide in sodium iodide solutions of various concentrations.—*J. Chem. Soc., Lond.*, 1909, v. 96, p. 574.

#### **SODII NITRAS.**

Munroe, Charles E., reports observations on the consumption of nitrate of soda in the United States.—*J. Ind. Eng. Chem.*, 1909, v. 1, pp. 297–298.

Arny, H. V., reports three samples of sodium nitrate examined; all up to the requirements of the U. S. P. VIII.—*Proc. Ohio Pharm. Ass.*, 1909, p. 67.

#### **SODII NITRIS.**

Dohme and Engelhardt report one shipment of sodium nitrite rejected because of yellow color and strong odor of nitrous acid.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 718.

Barnes, George Edward, contributes a note on sodium nitrite in bronchial asthma.—*J. Am. M. Ass.*, 1909, v. 53, p. 2098.

Cook, F. C., in a discussion on the effects of chloride, sulphate, nitrate, and nitrite radicles of some common bases on the frog's heart, concludes that with small doses of nitrite a small stimulating action was noted. Large doses, however, are said to depress the cardiac muscles as well as the vaso-motor system.—*Am. J. Physiol.*, 1909, v. 24, pp. 263–268.

Brown, Alexander G., discusses the use of nitrites in the therapeutic management of arteriosclerosis, and points out that the official members of this group are amyl nitrite, spirit of glyceryl trinitrate, and sodium nitrite.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 31.

Wallace and Ringer, in a discussion on the lowering of blood pressure by the nitrite group, compare the results obtained with amyl nitrite, nitroglycerin, sodium nitrite, and erythrol tetranitrate.—*Ibid.*, 1909, pp. 160–166.

#### SODII PHOSPHAS.

Dohme and Englehardt report a few shipments of sodium phosphate containing an excessive amount of sulphate.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 718.

Bradshaw, Henry A., reports studies of the dried sodium phosphate of the market.—Drug Topics, New York, 1909, v. 24, p. 298. See also Proc. Pennsylvania Pharm. Ass., 1909, pp. 343–344.

LaWall, Charles H., points out that the commercial sodium phosphate exsiccated is usually marked "Sodium phosphate, dried and powdered," and contains from 15 to 20 per cent of moisture.—*Ibid.*, p. 369.

Dunn, John A., presents a modified formula for effervescent sodium phosphate and recommends replacing some of the exsiccated sodium phosphate with granulated sodium phosphate to supply additional water. He also suggests increasing the total acid to give the finished product a slightly acid taste.—Proc. Am. Pharm. Ass., 1909; v. 57, p. 946.

Fyfe, John William, asserts that the phosphate of sodium energetically influences the bones, glands, lungs, and abdominal organs. Its field of therapeutic action is therefore somewhat extensive. Natrum phosphoricum has been extensively employed in the various forms of rheumatism. Phosphate of sodium is beneficial in acute gout as well as in the chronic form of this painful disease. Natrum phos. has been employed in the treatment of the morphine habit. Sodium phosphate is especially valuable in the treatment of children.—J. Therap. & Dietet., Boston, 1908–9, v. 3, pp. 104–106.

#### SODII SALICYLAS.

Schamelhout, A., notes that the French neutral sodium salicylate contains 1 molecule of water of crystallization (10.11 per cent); the Belgian salt should be anhydrous.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 79.

A committee of the Syndicat général de la Droguerie française asks that a slight acidity be tolerated in sodium salicylate.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 289.

Seidell, Atherton, points out that the U. S. P. requires that sodium salicylate be soluble in 0.8 parts of water; his results would indicate that it is soluble in 0.867 parts of water. The official solubility in alcohol is 5.5 parts; his results would indicate that it is soluble in 7.33 parts.—*J. Am. Chem. Soc.*, 1909, v. 31, p. 1168.

He also discusses the methods for the determination of salicylates, and concludes that the bromate method of Freyer and the iodine method of Messinger and Vortmann are shown to be of uncertain reliability for the quantitative determination of the salicylic radicle.—*Ibid.*, v. 31, pp. 1168–1177.

Bachman, Gustave, found sodium salicylate 91.1 to 97.58 per cent pure.—*Proc. Minnesota Pharm. Ass.*, 1909, p. 70.

Earp (N. York M. J.) asserts that equal parts of peppermint water and simple sirup make a good vehicle for sodium salicylate, unless there is an objection to the intensely sweet taste, when the sirup of licorice answers best.—*Meyer Bros. Drug.*, St. Louis, 1909, v. 30, p. 117.

Murrell, William, asserts that sodium salicylate is the salt of salicylic acid most commonly employed, and although there is much talk about its depressing action on the heart no practical inconvenience results from its administration. He can see no advantage in combining salicylates and alkalies.—*Merck's Arch.*, 1909, v. 11, p. 119.

Haynes, G. S., points out that as salicylic acid itself causes irritation of the stomach, and as the sodium salt is decomposed by mineral acids, similar results are apt to follow its administration by the mouth.—*Folia Therap.*, Lond., 1909, v. 3, p. 13.

Baldoni, Alessandro, reports observations on the behavior of sodium salicylate in the organism.—*Arch. farmacol. sper.*, 1909, v. 8, pp. 174–201.

Additional references on the pharmacology and uses of sodium salicylate will be found in the *Index Medicus* and *J. Am. M. Ass.*

#### SODII SULPHAS.

The White Cross Congress held in Paris in October, 1909, suggests that sodium sulphate may contain a small quantity of chlorides, not above 1 per cent expressed as NaCl.—*Chem. & Drug.*, Lond., 1909, v. 75, p. 682.

A committee of the *Syndicat général de la Droguerie française* asks that traces of chlorides, 0.1 per cent, and traces of iron be tolerated in sodium sulphate.—*Bull. sc. pharmacol.*, Par., 1909, v. 16, p. 289.

D'Ans and Schiedt, in a contribution to our knowledge of the acid sulphates, discuss the system sodium sulphate, sulphuric acid, water.—*Ztschr. f. Anorg. Chem.*, 1909, v. 61, pp. 91–95.

Ginsberg, A. S., presents a study of the combinations of magnesium and sodium sulphate.—*Ibid.*, v. 61, pp. 122–136.

LaWall, Charles H., reports that dried and powdered sodium sulphate contains about 4 per cent of water.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 370.

Patch, E. L., reports sodium sulphate, purified, dried, 87.9 to 99.9 per cent pure.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 738.

An editorial (*Therap. Gaz.*, 1909, v. 33, pp. 328–330) in discussing the action of saline purgatives, expresses the belief that the dominant influence of sodium sulphate depends upon its causing a retention of fluid in the bowel and in adding to that fluid by the pouring out of liquid from the tissue.

Webb, Frank, asserts that "Natrum sulph" is indicated in cases of asthma aggravated by change of dry, hot weather to damp, cool weather from over-exertion.—*J. Therap. & Diet.*, 1909–10, v. 4, p. 109.

Fyfe, John William, asserts that the sulphate of sodium (also known as Glauber's salt) in small doses of triturations has been extensively employed in many wrongs of life with satisfactory results. Its action in general is that of an energetic medicament in all gastric-bilious conditions, and its most marked indication is a dirty greenish-gray or greenish-brown coating on the root of the tongue.—*Ibid.*, 1908–9, v. 3, pp. 135–137.

#### SODII SULPHIS.

A committee of the Syndicat général de la Droguerie française asks that traces of chlorides, 0.1 per cent, and traces of iron be tolerated in sodium sulphite solution.—*Bull. sc. pharmacol., Par.*, 1909, v. 16, p. 289.

Weston, Frank E., presents a note on the detection of sodium sulphite in the presence of sodium sulphate and sodium thiosulphate.—*Chem. News., Lond.*, 1909, v. 100, p. 176.

Hartley and Barrett report observations on sodium sulphite and its equilibrium with water.—*J. Chem. Soc. Lond.*, 1909, v. 95, pp. 1178–1185.

Army, H. V., reports six samples of sodium sulphite examined; all were evidently effloresced, as all took up much more iodine V. S. than directed. One took up 72.3 cc. N/10 iodine V. S.—*Proc. Ohio Pharm. Ass.*, 1909, p. 66.

Pearson, W. A., reports one lot of sodium sulphite low in strength. Two other lots contained heavy metals.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 181.

Lehmann and Trentlein (*Archiv. f. Hyg.*, 1909, v. 63, pp. 303–318), working with cats and dogs, report experimental results on the harmfulness of sodium sulphite administered in small doses and for long periods.—*Nouv. remèdes*, 1909, v. 25, p. 320.

**SODII THIOSULPHAS.**

Jones, Bernard Mouat, reports observations on the spontaneous crystallization of solutions of sodium carbonate and sodium thiosulphate, and concludes that supersaturated solutions of sodium thiosulphate, freed from crystal nuclei and between certain limits of concentration (0 to 40 and 179 to 255 parts of anhydrous salt and 100 parts of water), crystallize at definite temperatures when subjected to mechanical friction.—J. Chem. Soc., Lond., 1909, v. 95, pp. 1672–1683.

Kline, C. M., reports on one lot of sodium thiosulphate containing sulphides.—Proc. N. W. D. A., 1909, p. 135. See also Proc. Pennsylvania Pharm. Ass., 1909, p. 181.

Burnett, J. A., asserts that solution of sodium hyposulphite can be used with moderately good results in mild cases of rhus poisoning, but the remedy causes considerable pain if the parts are really sore.—Eclectic M. J., Cincin., 1909, v. 69, p. 188.

**SPARTEINÆ SULPHAS.**

Smith, Otis W., reports that he found sparteine sulphate in one place only, in Sedalia.—Proc. Missouri Pharm. Ass., 1909, p. 113.

Baldoni, Alessandro (Arch. d. farmacol. sper. 7, Heft 11/12), reports observations on the pharmacological action of sparteine and states that the action is similar to that of caffeine and of the digitalis bodies.—Jahresb. ü. Tier-Chem., 1909, Wiesb., 1910, v. 39, p. 1204.

McGee, J. B., asserts that sparteine sulphate rather resembles strophanthus in the fact that while it strengthens the heart it does not contract the vessels. Its promptness of action is also an advantage, and like strophanthus it is better as an emergency remedy than digitalis.—Merck's Rep., 1909, v. 11, p. 82.

An editorial (Critic & Guide, 1909, v. 12, p. 106) asserts that while sparteine sulphate sometimes acts very nicely, it quite often is disappointing. If a few doses fail to produce increased diuresis, it should be discarded.

**SPECIES N. F.****SPECIES EMOLLIENTES N. F.**

Posey, H. G., points out that the Ph. Germ. formula for emollient species includes melilot, and, under the title *Herba Meliloti*, defines that substance as *Melilota officinalis*; therefore, if the authority for this preparation is quoted, the footnote should be corrected. The other two formulas for species should be given attention also, for, while both bear the authority of the Ph. Germ., neither are in accordance with the formulas given in that book.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 993.

Diehl, C. L., reports from the committee on N. F. the recommendation to change titles to read "*Cataplasma althææ composita*; Compound althæa poultice." The directions should be changed to read: "Reduce the dry substances to a coarse powder and mix; make poultice with hot water when required."—*Ibid.*, v. 57, p. 1084.

#### SPECIES PECTORALES N. F.

The Belgian inspectors of pharmacies find that little respect is paid to pharmacopœial proportions for pectoral species. Sometimes the leaves of tussilago are substituted for those of verbascum.—J. d. pharm. d'Anvers, 1909, v. 65, p. 552.

Diehl, C. L., reports from the committee on N. F. recommending the elimination of ("G. P.") after the synonym "Breast tea."—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1084.

#### SPIGELIA.

Rusby, H. H., asserts that the description for spigelia must be much improved.—Pharm. Era., 1909, v. 42, p. 635.

Wilbert, M. I., presents a contribution to the history of "Pink root," and calls attention to the probable origin of the mistaking of ruellia for *Phlox carolina*. Also calls attention to several misstatements contained in the U. S. Dispensatory and the probable origin of these quotations.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 1170-1173.

An editorial (Drug Circ., N. Y., 1909, v. 53, p. 107. See also p. 574) calls attention to a number of recent articles on spigelia and ruellia, and points out that Henry Kraemer seems to have been a pioneer in this work as shown by references in his Botany and Pharmacognosy, first edition, 1902.

Moser, John, reports examining nine samples of so-called pink root. Two of these samples proved to be genuine spigelia, one consisted entirely of ruellia, while five of the samples consisted entirely of a root which he believes to have characteristics suggestive of phlox. The remaining sample consisted of about equal parts of the latter root and a coarse root which bore no resemblance to it. He concludes that while ruellia is frequently met with as an adulterant of spigelia it is by no means the principal adulterant, and that species of phlox, probably both *P. ovata* and *P. glaberrima*, are at the present time frequently collected and sold as spigelia.—Am. J. Pharm., Phila., 1909, v. 81, pp. 576-578.

Mansfield, William, in a contribution on ruellia as a spigelia substitute, presents a number of illustrations showing a typical specimen of spigelia and a typical specimen of ruellia; also an enlarged reproduction of the cross section of the stem, the rhizome and root of

*Spigelia marylandica*, and a cross section of the stem rhizome and root of *Ruellia ciliosa*. He also shows the characteristic appearance of powdered *S. marylandica* and of powdered *R. ciliosa*.—Drug. Circ., N. Y., 1909, v. 53, pp. 110–114.

Pearson, W. A., reports that most of the commercial drug on the market is a mixture of roots of different plants. He found at least four different plants represented in a single bag. *Ruellia* and varieties of phlox have been reported as the common adulterants.—Proc. Pennsylvania Pharm. Ass., 1909, p. 181.

Kebler, Lyman. F., at a meeting of the City of Washington branch, exhibited a sample of powdered pink root that consisted entirely of powdered *ruellia*.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 20.

Gane and Webster point out that most of the commercial *spigelia* is a mixture of *ruellia* and *spigelia*, with the former usually predominating in quantity. Some specimens are wholly *ruellia* or *ruellia* with roots of some associated plant. It is very rare to come across a specimen entirely composed of *spigelia* root.—Drug Topics, New York, 1909, v. 24, p. 85.

Kline, C. M., reports an experience with *spigelia* and calls attention to the lack of definite knowledge of many drugs which will make it difficult to detect adulterants for years to come.—Proc. N. W. D. A., 1909, pp. 120–121.

Kebler, L. F., in discussing the frequent adulteration of pink root by *ruellia* says that it is claimed by some that *ruellia* is as efficient an anthelmintic as pink root.—Am. J. Pharm., Phila., 1909, v. 81, p. 76.

Forbush, A. Waldo, points out that in large doses *spigelia* will produce various unpleasant symptoms, viz, vertigo, dimness of vision, dilated pupils, spasmodic movements of the eyelids, disinclination to mental work, restless and anxious headache, spasmodic movement of the facial muscles, and sometimes general convulsions. He also points out that *spigelia* has been prescribed with advantage in neuralgia, in inflammatory conditions of the eye, in constriction of chest with stitches, and in rheumatic endocarditis and pericarditis.—J. Therap. & Dietet., Boston, 1908–9, v. 3, pp. 260–264.

#### SPIRITUS.

Dieterich and Mix in a discussion on the valuation of galenical preparations enumerate the determinable physical characteristics of the Ph. Germ. IV and some unofficial spirits.—Pharm. Zentralh., 1909, v. 50 p. 731.

Diehl, C. L., reports from the committee of N. F. recommending the deletion of the formula for spirit of volatile oil.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1085.



## SPIRITUS ACIDI FORMICI N. F.

Diehl, C. L., reports from the committee on N. F. recommending the elimination of the note following spirit of formic acid.—*Ibid.*, v. 57, p. 1084.

## SPIRITUS ÆTHERIS.

Dunlap, Renick W., dairy and food commissioner of Ohio, points out that Hoffman's drops is a well-established synonym for the simple spirit of ether.—*Midl. Drug.*, 1909, v. 43, p. 355.

Fleissig, Paul, points out that the Ph. Fr. V directs that spirit of ether contain 50 per cent of ether, while the similar preparation of the Ph. Germ. contains but 25 per cent.—*Therap. Monatsh.*, Berl., 1909, v. 23, p. 752.

## SPIRITUS ÆTHERIS COMPOSITUS.

Dunlap, Renick W., notifies the druggists of Ohio that the official compound spirit of ether is to be dispensed where "Hoffman's Anodyne" is called for, and the simple spirit of ether of the U. S. P. for "Hoffman's Drops."—*Rep. Ohio Dairy & Food Com.*, 1909-10, p. 41. See also *Midl. Drug.*, v. 43, p. 355.

Kline, C. M., asserts that for years genuine spirit of ether compound made from U. S. P. ethereal oil has commanded practically no sales. Under the title of Hoffman's Anodyne, an article prepared from so-called heavy oil of wine, has had an almost universal demand. Recently, however, it became apparent that under the State laws, if the article should be dispensed as Hoffman's Anodyne, the druggist so doing would render himself liable to prosecution. Therefore, many manufacturers have declined to supply anything but the genuine article.—*Proc. N. W. D. A.*, 1909, p. 124.

Baird, J. W., quotes Robert A. Grimes' report on 25 samples of Hoffman's Anodyne, which were found to vary greatly in composition. The ether content is low, and in no case was the ether more than one-half of what it should be, while the amount of alcohol was high. The amount of ethereal oil varied from none in one to 2.5 cc., the required amount, in only one sample.—*Proc. Massachusetts Pharm. Ass.*, 1909, pp. 123-124.

Hill, Edward C., reports three samples of compound spirit of ether examined, one of which was not up to standard.—*Bull. Colorado Bd. Health*, 1909, v. 9, No. 1, p. 2.

Dunlap, Renick W., reports eight samples of Hoffman's Anodyne examined, six not passed.—*Rep. Ohio Dairy & Food Com.*, 1909, p. 59.

## SPIRITUS ÆTHERIS NITROSI.

Dott, D. B., outlines a short method of preparing spirit of nitrous ether.—*Pharm. J.*, Lond., 1909, v. 28 (82), p. 429.

He also points out that the official Ph. Brit. process for making spirit of nitrous ether is unsuited for frequent operation on a small scale. He does not think it possible to adopt any modification of the process which could prove satisfactory. He believes that pharmacopœial directions must avoid distillation or any difficult operation, such as the preparation of the ether itself and dilution of a weighed quantity of the same with alcohol.—*Chem. & Drug., Lond., 1909, v. 74, p. 501.*

"Abel Scholar" outlines a method for the experimental preparation of spirit of nitrous ether.—*Ibid., 1909, v. 75, p. 292.*

Amos, W. S., states that in making spirit of nitrous ether, if pint, instead of pound, of alcohol be used in diluting the concentrated nitrous ether (sold on the market as 1 to 21) 4 per cent of ethyl nitrite will usually test out in the finished product; while, if the alcohol is weighed, only a trifle over 3.75 per cent of ethyl nitrite will be found.—*Proc. Kansas Pharm. Ass., 1909, p. 55.*

An editorial (*Am. Druggist, N. Y., 1909, v. 55, p. 334*) discusses the possibility of explosion with tubes of concentrated nitrous ether, even when the tube has been cooled in accordance with directions given by the manufacturer.

An unsigned article points out that ethyl nitrite requires special care, because of danger from fire, and should be kept in hermetically sealed glass tubes. Care should also be exercised in preserving the spirit of nitrous ether, as when kept in the ordinary shelf bottle the preparation soon becomes useless.—*N. A. R. D. Notes, v. 8, 1909, p. 481.*

Dohme and Englehardt report on one shipment of nitrous ether which assayed 85 per cent and had to be rejected.—*Proc. Am. Pharm. Ass., 1909, v. 57, p. 717.*

Woods, Charles D., points out, in detail, certain precautions to be observed in handling spirit of nitrous ether.—*Rep. Maine Agric. Exper. Sta. (1908), 1909, App. 3, pp. 2-4; also (1909), 1910, App., pp. 137-151.*

Dunlap, Renick W., calls attention to the importance of keeping sweet spirit of nitre in accordance with the provisions of the U. S. P. VIII.—*Rep. Ohio Dairy & Food Com. (1909), 1910, p. 41. Also Mdl. Drug., v. 43, p. 355.*

Kahn, Joseph, points out that the presence of water and the action of sunlight and air cause rapid decomposition of spirit of nitrous ether. He outlines an iodometric method of assay which he believes not only shows the amount of ethyl nitrite present, but also the amount decomposed.—*Am. Druggist, N. Y., 1909, v. 55, p. 6. See also Proc. New York Pharm. Ass., 1909, p. 264.*

An unsigned article discusses the application of the nitrometer for the valuation of spirit of nitrous ether for the amount of ethyl nitrite which it contains.—*Pharm. J., Lond.*, 1909, v. 29 (83), p. 238.

*Table showing reported results with spirit of nitrous ether.*

| Reporters.                                       | Samples.  |           | References.  |
|--|-----------|-----------|--|
|  | Examined. | Rejected. |  |
| Hill, Edward C.....                              | 8         | 1         | Bull. Colorado Bd. Health, 1909, v. 9, No. 1, p. 2       |
| Seyre and Ziefe.....                             | 7         | 7         | Bull. Kansas Bd. Health, 1909, v. 5, D. A. 16-22         |
| Lythgoe, Hermann C.....                          | 4         | 4         | Rep. Massachusetts Bd. Health (1909), 1910, p. 476.      |
| Woods, Charles D.....                            | 23        | 17        | Rep. Maine Agric. Exper. Sta. (1909), 1910, App. p. 186. |
| Bachman, Gustave.....                            | 4         | 3         | Proc. Minnesota Pharm. Ass., 1909, p. 71.                |
| Diakman, George C.....                           | 3         | 2         | Rep. New York Bd. Pharm. (1909), 1910, p. 12             |
| Dunlap, Renick W.....                            | 1         | 1         | Rep. Ohio Dairy & Food Com., 1909, p. 60.                |
| Army, H. V.....                                  | 11        | 9         | Proc. Ohio Pharm. Ass., 1909, p. 67.                     |
| Wetterstrom, Theo. D.....                        | 1         | 1         | Proc. Ohio Pharm. Ass., 1909, p. 63.                     |
| Local Govt. Bd. England....                      | 202       | 23        | Pharm. J., Lond., 1909, v. 28 (82), p. 182.              |
| Local Govt. Bd., Scotland<br>(14th Annual Rep.). | 8         | 2         | Chem. & Drug., Lond., 1909, v. 75, pp. 17-18.            |

The Belgian inspectors of pharmacies report that the acidity of nitric ether exceeds the limits.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 584. See also *Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 234.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, pp. 36-38) report a comprehensive study of the behavior of spirit of nitrous ether under varying conditions. The results of this study are plotted on a chart, and indicate that the loss of ethyl nitrite depends for the most part on volatilization rather than on hydrolysis and that the influence of the color of the bottle is a negligible factor in the results.

Burnett, J. A., points out that many physicians use "sweet spirits of niter" as a local application in rhus poisoning. It has given him poor results, though he thinks it relieves the itching better than does quinine.—*Eclectic M. J., Cincin.*, 1909, v. 69, p. 188.

A news note reports the death of a child 3 years old from two-pennyworth of sweet niter.—*Chem. & Drug., Lond.*, 1909, v. 75, p. 595.

#### SPIRITUS AMMONIÆ AROMATICUS.

Gane and Webster point out that it is rare to see a sample of aromatic spirit of ammonia which has not a pronounced, brown, unsightly appearance due to the action of the alkali on the oils, and especially on the alcohol, or rather upon the aldehyde which is almost invariably present in the commercial alcohol. They point out that precautions should be taken to avoid the presence of alde-

hydres, and recommend the adoption of the Ph. Brit. method of distilling the alcohol with the essential oils.—Drug Topics, New York, 1909, v. 24, p. 68.

#### SPIRITUS AROMATICUS N. F.

Posey, H. G., asserts that aromatic spirit should be omitted, and compound spirit of orange, U. S. P., in the proper proportion used to replace it in any formula into which it enters.—Proc. Am. Pharm. Ass., v. 57, p. 993.

#### SPIRITUS CURASSAO N. F.

Posey, H. G., reports that repeated attempts to procure oil of Curaçao orange having proven futile both to himself and others, it is suggested that this formula for the spirit be omitted, and one inserted in its place having as its base the essential oil derived from *Citrus nobilis* or Mandarin orange.—*Ibid.*, p. 993.

Diehl, C. L., reports from the committee on N. F., asserting that Spirit of Curaçao should be omitted if the proposed formula for "Elixir of Curaçao" is accepted.—*Ibid.*, p. 1085.

#### SPIRITUS FRUMENTI.

Woods, Charles D., gives at length standards for whisky, brandy, and other spiritous liquors.—Rep. Maine Agric. Exper. Sta. (1909, 1910, App., pp. 3-6). See also pp. 127-129.

The Catalogue of Definitions adopted by the International Congress for the Suppression of Adulteration (Geneva, 1908) defines l'eau-de-vie as, in general, the product of a mixture of ordinary alcohol diluted with water to a consumable degree.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 234.

The Brit. M. J. (1909, v. 2, pp. 399-404) presents the report of the Royal Commission on whisky and other potable spirits. See also Editorial, *Ibid.*, p. 407.

An editorial (Pharm. J., Lond., 1909, v. 29 (83), pp. 231-232) points out that the royal commission on whisky and other potable spirits has issued its final report and concludes that whisky, as a commercial product, is regarded both by the manufacturers and by the public as a spirit made from no other materials than malt and unmalted grains.

A decision dealing with whisky and mixtures, and imitations thereof, under the food and drugs act of June 30, 1906, is given in U. S. Dept. Agr. Food Insp. Decision 113, p. 2.

Ladd, E. F., replies to the criticism that he has not recognized the right to sell either compound or imitation whisky, brandy, wine, etc., that North Dakota is a prohibition State and the sale of these

products is lawful only as medicinal preparations. As the U. S. P. and other standards do not recognize compound and imitation whisky or like products, it would be neither proper nor wise for him to recognize as legitimate, products which the laws and the constitution of North Dakota strictly prohibit.—Proc. North Dakota Pharm. Ass., 1909., p. 73.

The proceedings before and by direction of the President, concerning the meaning of the term "whisky," are presented in an 8vo. volume of 1,328 pages, Washington, Government Printing Office, 1909.

Renington, Joseph P., comments on the value of the pharmacopœial description of spiritus frumenti as a standard for a widely-used medicament and beverage.—Proc. Pennsylvania Pharm. Ass., 1909, pp. 88-92.

Wilbert, M. I., calls attention to some of the reasons why alcoholic beverages, particularly brandy, whisky, and red wine, should be deleted from the Pharmacopœia.—Am. J. Pharm., Phila., 1909, v. 81, pp. 439-440.

Mastbaum, Hugo, presents some suggestions on the analysis of alcohol and of whisky.—Proc. VIIth Internat. Congress App. Chem., Sec. VIIc, Bromatology, 1909, London, 1910, p. 229.

Dunlap, Renick W., reports four samples of whisky examined, which were not passed.—Rep. Ohio Dairy & Food Com., 1909, p. 58.

Stone, B. H., reports that of 112 samples of whisky examined in the Laboratory of Hygiene for the year 1908, 40 did not conform to the U. S. P. standard; for the year 1909, of 69 samples of straight whisky examined 15 were below standard, and of 207 samples of blended, compound, and imitation whisky 20 were below standard.—Rep. Vermont Bd. Health (1908-9), 1910, pp. 140-180.

Gane, E. H., reports on three samples of whisky containing about 25 parts of copper per million.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 739.

#### SPIRITUS GLYCERYLIS NITRATIS.

Nathan, Frederick L., reports some observations on the improvements and application of guncotton and nitroglycerin, and comments on their use as explosives.—Chem. News, Lond., 1909, v. 99, pp. 136-138; 152-153; 159-160.

Robertson, Robert, reports observations on the velocity of decomposition of nitroglycerin.—J. Chem. Soc., Lond., 1909, v. 95, pp. 1241-1248. See also Proc. VIIth Internat. Congress App. Chem., Sec. IIIb., Explosives, 1909, Lond., 1910, pp. 95-98.

Dohme, A. R. L., reports the results of a comprehensive investigation on the deterioration of nitroglycerin tablets, and states that his figures disprove the claim that these tablets deteriorate rapidly.—Proc. Maryland Pharm. Ass., 1909, p. 104.

French, G. H., asserts that glonoin has been used in cases of epilepsy with cerebral congestion with excellent results.—*J. Therap. & Dietet.*, Boston, 1908-9, v. 3, p. 189.

Brown, Alexander G., discusses the use of nitrites in the therapeutic management of arteriosclerosis, and points out that the official members of this group are amyl nitrite, spirit of glyceryl trinitrate and sodium nitrite.—*Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, p. 31.

An editorial (*Therap. Gaz.*, 1909, v. 33, p. 777) commenting on the employment of chloroform in the treatment of pulmonary hæmorrhage, asserts that nitroglycerin has been used hypodermically with very excellent results and expresses the belief that this is the best remedy for the majority of patients suffering from this complication and is infinitely less dangerous than is chloroform.

Additional references on the chemistry, pharmacology and uses of glyceryl trinitrate will be found in *Chem. Abstr.* *Am. Chem. Soc.*, *Index Medicus* and *J. Am. M. Ass.*

#### SPIRITUS MYRCLE N. F.

Dunlap, Renick W., dairy and food commissioner of Ohio, points out that bay rum should be made directly in accordance with the requirements of the National Formulary, and that the so-called concentrated preparations that are on the market do not yield a finished product that complies with the requirements.—*Midl. Drug.*, 1909, v. 43, p. 355. See also *Rep. Ohio Dairy & Food Com.* (1909), 1910, p. 42, 59.

Street, John Phillips, reports a sample of "Superior Bay Rum" which contained 33.54 per cent by volume of methyl alcohol and was artificially colored.—*Rep. Connecticut Agric. Exper. Sta.* (1909), 1910, p. 271.

The same chemist reports five samples examined, four adulterated. Three contained methyl alcohol, and one was a solid consisting chiefly of common salt, colored with a coal-tar dye.—*ibid.*, p. 278.

Thurston, Azor, reports 3 samples of bay rum, out of 14 examined, as containing methyl alcohol, 2 contained coal-tar dyes, and all were below standard in alcohol, which should be about 57.34 per cent.—*Proc. Ohio Pharm. Ass.*, 1909, p. 63. See also *Midl. Drug.*, 1909, v. 43, pp. 453-454.

McWalter, J. C., in advocating *Spt. myricæ vel pimentæ* for admission to the *Ph. Brit.*, points out that a useful hair-stimulant, in a form ready for prescribing, is required.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 20.

#### SPIRITUS ODORATUS N. F.

Schamelhout, A., calls attention to the differences between the formulas of the *Ph. Fr. V* and of the *Ph. Belg. III* for Cologne water.—*Bull. Soc. roy. d. pharm.*, Brux., 1909, v. 53, p. 82.

The Belgian inspectors of pharmacies report that beside the medicinal Cologne water, which is but little sold on account of its high price, they find commercial preparations intended for the toilet which do not respond at all to the desired alcoholic strength nor to the composition indicated by the pharmacopœia.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 624.

#### SPIRITUS OPHTHALMICUS N. F.

Diehl, C. L., reports from the committee on N. F. recommending the dismissing of ophthalmic spirit.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1085.

#### SPIRITUS VINI GALLICI.

The Catalogue of Definitions, adopted by the International Congress for the Suppression of Adulterations (Geneva, 1908) defines l'eau-de-vie de vin as the product of the distillation of wine exclusively. Cognac, or eau-de-vie des Charentes, is defined as the product of the distillation of the natural wines produced and distilled in the administrative limits of Charente, or lower Charente, according to the local producers (les procédés charentais).—*Bull. sc. Pharmacol., Par.*, 1909, v. 16, p. 234.

Martell, E., points out that the real designation of the product that the new French regulations were framed to protect was cognac, or cognac brandy, and this should be a spirit distilled from Charente wine.—*Brit. Food J., Lond.*, 1909, v. 11, p. 40.

The evidence taken by the Royal Commission on potable spirits to determine the nature of brandy and the limitation to be placed on the same is reprinted.—*Ibid.*, 1909, v. 11, pp. 40–44.

Schidrowitz, Philip, in a hearing before the Royal Commission on potable spirits while discussing brandy as a medicine, points out that it was the only spirit official in the Ph. Brit. and that a closer definition than that now existing should be given. It might be worth while to make some experiments clinically. Brandy should be either deleted from the pharmacopœia, or some reason given for leaving it there.—*Ibid.*, v. 11, p. 44.

An editorial (*Pharm. J., Lond.*, 1909, v. 29 [83], p. 232) points out that the Royal Commission on whisky and other potable spirits reports, as regards brandy, the evidence is strong in favor of regarding this as a spirit derived from no other materials than the grape, and their conclusion is that the term brandy is applicable to a potable spirit manufactured from fermented grape juice, and from no other materials, but they are of opinion that the compounded spirit long recognized by the name of "British brandy" is entitled still to be so named and sold as British brandy. They also think that the de-

termination of the application of the term brandy in England can not be controlled by the nature of the apparatus or process used in the distillation of spirit.

An editorial note (Brit. & Col. Drug., 1909, v. 56, p. 141) points out that brandy is in the British Pharmacopœia, whisky is not. The "What is Whisky" Commission has also covered the question what is brandy, and the resulting definition, while more satisfactory than the Ph. Brit. requirement, so far as the derivation of the product is concerned, is less definite in respect to its ultimate composition.

Moor and Partridge point out that while certain analytical factors can be given that characterize genuine brandy, almost all of them can be intentionally stultified. They suggest that the definition of the pharmacopœia might be amplified to make it clear that the word "brandy" is to mean a spirit made by distilling a sound wine in a pot still and maturing the product by age for a specified time.—Proc. VIIth Internat. Congress App. Chem., VIIIc., Bromatology, 1909, London, 1910, p. 167.

Guillon, J. M., discusses the nature and composition of cognac.—*Ibid.*, pp. 222–223.

Ordonneau, Ch., presents some observations on the nature of the ethers contained in brandy and the causes for their variation.—*Ibid.*, pp. 224–228.

Browne, Frank, discusses the estimation of ethers in brandy, and reports the results of his experiments.—Pharm. J., Lond., 1909, v. 29 (83), p. 598.

Jägerschmid, A., outlines a method for detecting caramel in brandy which involves precipitation by means of albumin and testing the concentrated filtrate with freshly prepared resorcin hydrochloric acid solution. In the presence of caramel a permanent cherry red color results.—Ztschr. f. Unters. Nahr. u. Genussm., 1909, v. 17, p. 269.

Stone, B. H., reports that, of 17 samples of brandy examined in the Laboratory of Hygiene during the year 1908, 13 were not of U. S. P. standard; for the year 1909, of 21 samples of straight brandy, 19 were below standard.—Rep. Vermont Bd. Health (1908–9), 1910, pp. 140–180.

Sayre and Zieffe report 20 samples of brandy examined, 6 of which were below standard.—Bull. Kansas Bd. Health, 1909, v. 5, D. A. 16–23.

#### SPONGIA COMPRESSA N. F.

Posey, H. G., asserts that compressed sponge should be omitted.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 993.

Diehl, C. L., reports from the committee on N. F. recommending the deletion of compressed sponge and of decolorized sponge.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1085.



**STAPHISAGRIA.**

Capps, Pratt, McCrae and Halsey recommend the deletion of staphisagria from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

Ballard, Charles W., discusses the microscopy of larkspur and stavesacre, and presents illustrations showing the structural characteristics of these seeds.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 892–896. See also Am. J. Pharm., Phila., 1909, v. 81, p. 436.

Kline, C. M., reports that a bag of larkspur seed contained an unknown seed, but one which is commonly used to adulterate larkspur.—Proc. N. W. D. A., 1909, p. 130.

Caldwell, Paul, asserts that the fluid extract of staphisagria should be changed to tincture.—Bull. Pharm., 1909, v. 23, p. 115.

Wimmer, Curt P., presents a formula for tincture of delphinium. He expresses the belief that tincture of larkspur seed should be included in the next issue of the National Formulary.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 1133–1137.

**STILI DILUBILES N. F.**

Diehl, C. L., reports from the committee on N. F., recommending the deletion of paste pencils.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1085.

**STILLINGIA.**

Fussell, M. H., in recommending the deletion of stillingia from the Pharmacopœia, asserts that it is never used in syphilis with effect.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 205.

Capps, Pratt, McCrae and Halsey recommend the deletion of stillingia and fluidextractum stillingiae from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

Diehl, C. L., reports from the committee on N. F. recommending the addition of 5 gm. of sodium borate to the filtrate before adding the sugar in making compound sirup of stillingia N. F.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1090.

**STRAMONIUM.**

Schneider, Albert, points out that stramonium grows anywhere in California. It is common in waste places.—Pacific Pharmacist, 1909–10, v. 3, p. 193.

Rollman, Henry, reports that he has raised stramonium successfully in his garden.—Proc. Wisconsin Pharm. Ass., 1909, p. 40.

Peckolt, Th., asserts that *Datura stramonium* L. grows wild in nearly all of the States of Brazil, being popularly designated there as “Figueira do inferno.”—Ber. d. pharm. Gesellsch., Berl., 1909, v. 19, p. 299.

Rusby, H. H., points out that the confusion, incident to depending solely upon a chemist's determination of the alkaloidal strength, is well illustrated by a shipment of stramonium leaves to which belladonna had been added to bring up the alkaloidal strength.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 188.

Peters, W., gives the moisture content of stramonium as 6.83 to 7.15 per cent, the ash content of the air-dry drug as 18.46 to 22.23 per cent, the ash content of the dried drug as 15.58 to 23.32 per cent, and the color of the resulting ash as varying from light gray to dark gray, or whitish gray to yellowish gray.—Apoth. Ztg., Berl., 1909, v. 24, p. 538.

Caesar & Loretz (Geschäfts-Ber., 1909, p. 91) suggest the assay of stramonium according to the method recommended by them for belladonna. They point out that the Ph. Austr. requires that the ash content of this drug do not exceed 20 per cent, also that the original U. S. P. requirement of 0.35 per cent of alkaloid has been recently reduced to 0.25.

Watanabe, M., reports examining stramonium of Japanese origin which he found to contain hyoscyamine with a trace of atropine.—J. Pharm. Soc. Japan, 1909, p. 213. See also Proc. VIIth Internat. Congress, App. Chem., Sec. VIIIb, Pharmacy, 1909, London, 1910, p. 134.

Dohme and Englehardt report that the samples of stramonium leaves submitted were of good quality, as out of 9 lots only 1 had to be rejected. This assayed only 0.07 per cent total mydriatic alkaloids.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 718.

Vanderkleed, C. E., reports 24 assays of stramonium leaf, lowest 0.21, highest 0.53 per cent mydriatic alkaloids; 19 above and 5 below standard.—Proc. Pennsylvania Pharm. Ass., 1909, p. 129.

Pearson, W. A., reports seven lots of stramonium assayed containing from 0.22 to 0.34 per cent of mydriatic alkaloids.—*Ibid.*, p. 181.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 54) report on two consignments stramonium leaves yielding 0.24 and 0.208 per cent of alkaloid.

Wood (C. A.), Jackson, Schneideman, and Davis recommend that extract of stramonium be dropped from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 793.

Gane and Webster, in commenting on the statement made by Ribaut (Bull. sc. pharmacol.) that extract of stramonium is readily decomposed by the action of bacteria and molds, point out that this conclusion is in direct conflict with the observations made by them and others.—Drug Topics, New York, 1909, v. 24, p. 21.

Dunn, John A., recommends an ether-chloroform mixture for shaking out fluid extract of stramonium.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 952.

Cook, E. Fullerton, reports that tincture of stramonium soon develops a small quantity of a dark-colored, finely divided precipitate.—*Ibid.*, p. 1004.

Mittelbach, William, asserts that the formula for stramonium ointment is very good.—*Ibid.*, p. 817.

#### STRONTII BROMIDUM.

Caron and Raquet discuss the strontium salts of the new Ph. Fr.—*Répert. d. pharm., Par.*, 1909, v. 21, pp. 4-5. See also pp. 60-61 for correction.

McWalter, J. C., asserts that strontii bromidum is distinctly useful, with other bromides, in epilepsy, and he recommends this drug for inclusion in the Ph. Brit.—*Chem. & Drug., Lond.*, 1909, v. 74, p. 20.

Ellingwood, Finley, asserts that strontium bromide is a comparatively new remedy which seems to exercise both a soothing and tonic influence upon the stomach and intestinal tract. He finds it especially useful in chronic stomach disorder in conjunction with other indicated remedies.—*Eclectic Rev.*, 1909, v. 12, p. 18.

An editorial (*Critic & Guide*, 1909, v. 12, p. 106) asserts that strontium bromide is least apt to cause acne and gastro-intestinal disturbance and is very eligible for prolonged use in epilepsy.

#### STRONTII SALICYLAS.

Seidell, Atherton, points out that the U. S. P. requires that strontium salicylate be soluble in 18 parts of water; his results would indicate that it is soluble in 18.85 parts of water. The official solubility in alcohol is given as in 66 parts; his results would indicate that it is soluble in 48.51 parts.—*J. Am. Chem. Soc.*, 1909, v. 31, p. 1168.

Dohme and Englehardt report one shipment of strontium salicylate showing a reddish color, apparently due to traces of iron salt present.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 718.

#### STROPHANTHINUM.

Pédebidou, J., reports a study of the comparative toxicity of strophanthin in the various methods of administration.—*Compt. rend. Acad. d. sc., Par.*, 1909, v. 149, pp. 306-309.

Heffter, A., reports a study on the variations existing in the commercial varieties of strophanthin. He points out that the untoward results obtained with other active ingredients, aconitine for instance, should indicate to the physician the need for care in the selection and use of strophanthin.—*Therap. Monatsh., Berl.*, 1909, v. 23, pp. 45-48.

Bailey, Harold C., reports a clinical study of the action of crystalline strophanthin, and concludes that in emergencies it may be given intramuscularly or intravenously, and it is a valuable cardiac stimu-

lant when compensation is broken in chronic interstitial myocarditis or in any form of chronic valvular disease.—J. Pharm. & Exper. Therap., 1909-10, v. 1, pp. 349-367.

McGee, J. B., points out that strophanthin has the advantage of ready solubility when the hypodermic method is chosen.—Merck's Arch., 1909, v. 11, p. 82.

An editorial (*Ibid.*, p. 334) points out that one of the most prized substitutes for digitalis, where a quick action is desired, is strophanthin, administered intravenously.

Fraenkel, Albert, discusses the dangers of the intravenous injection of strophanthin.—Therap. Monatsch., Berl., 1909, v. 23, pp. 109-110.

Seifert, Otto, cautions against the subcutaneous use of strophanthin because of the accompanying local irritation. The intravenous injection is frequently accompanied by chills, cyanosis, and rising temperature.—Apoth. Ztg., Berl., 1909, v. 24, p. 35.

Catillon reports to the Therapeutic Society that he has collected four cases of death following intravenous injections of strophanthin. He finds less risk, more rapid and energetic effects, by administering strophanthus by the stomach.—J. d. pharm. et d. chim., Par., 1909, v. 29, p. 79.

Chevalier, commenting on the communication of Catillon, considers crystallized strophanthin safer than the amorphous, and calls attention to the existence of a number of crystalline strophanthins, differing from each other in the methyl groups. He considers strophanthin more toxic than digitalin and utters a warning as to its intravenous use.—J. d. pharm. et d. chim., Par., 1909, v. 30, p. 87.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 321-324) reviews some of the recent literature relating to the use of strophanthin and the use of strophanthin cryst. (Thoms).

Additional references on the chemistry, pharmacology, and uses of strophanthin and of ouabain will be found in Chem. Abstr. Am. Chem. Soc., Biochem. Centralbl., Jahresb. ü. Tier-Chem., Index Medicus, and J. Am. M. Ass. See also under "Strophanthus."

### STROPHANTHUS

Pabisch, H., in a contribution to our knowledge of the substances used as arrow poisons presents a number of references on the literature of strophanthus and related drugs.—Ztschr. d. allg. österr. Apoth.-Ver., Wien, 1909, v. 47, pp. 509-511.

Badermann, G., asserts that the cultivation of *Strophanthus hispidus* succeeds well in Togo and that the plant bears fruit from the third year.—Pharm. Prax., 1909, v. 8, p. 393.

Weigel, G., points out that the Ph. Fr. V recognizes *S. hispidus* as the official source of this drug.—Pharm. Zentralh., 1909, v. 50, p. 283.

An unsigned article reviews the controversy regarding the desirable species of strophanthus, and concludes that for the present *S. kombé* should be retained as the source for the official drug.—J. d. pharm. v. Elsass-Lothr., 1909, v. 35, pp. 47-49.

"Wgl." discusses some of the recent contributions to the question: Which variety of strophanthus is most desirable? He concludes that, all things considered, the *kombé* variety is the most satisfactory and should be retained as the official source of the drug.—Pharm. Zentralh., 1909, v. 50, pp. 116-117.

Caesar & Loretz (Geschäfts-Ber., 1909, pp. 52-54) assert that the official *kombé* strophanthus seed is available in satisfactory quality and that chemical and physiological investigations show that the drug as it occurs in commerce is remarkably uniform. They also present reports by C. Focke and G. Fromme, who review some of the recent literature relative to strophanthus, its chemistry, and its uses.

Dohme and Engelhardt assert that as a good method for the determination of strophanthin is available it should be adopted by the U. S. P.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 886.

Caesar & Loretz (Geschäfts-Ber., 1909, pp. 107-109) describe the qualitative estimation of strophanthin, according to Fromme and according to Fr. Schaub, and also give a quantitative method.

Kline, C. M., reports that a lot of spurious strophanthus, consisting of *S. hispidus* in place of the official *S. kombé*, was met with at the port of Philadelphia. The lot was exported. There is sufficient difference in the microscopic appearance to distinguish this substance.—Proc. N. W. D. A., 1909, p. 136.

Houghton and Hamilton report a summary of their experience with tincture of strophanthus and propose as a standard 1,200 heart tonic units per cubic centimeter.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 784. See also Am. J. Pharm., Phila., 1909, v. 81, p. 465.

Evans Sons Lescher & Webb (Analytical Notes, 1909, pp. 2-3) recommend the isolated mammalian heart for the standardization of preparations of strophanthus.

Martin, William, outlines the method of biochemical standardization of strophanthus employed by him.—Pharm. J., Lond., 1909, v. 29 (83), pp. 152-153. See also Year-Book of Pharmacy, Lond., 1909, p. 253.

Dunn, John A., advises the separation of the oil from the tincture of strophanthus by cooling down to approximately 4° C. and then filtering.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 950.

Berger, Fr., points out that the Ph. Helv. IV tincture of strophanthus is likely to contain oil globules, and recommends that the preparation be filtered through kaolin.—Schweiz. Wchnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, p. 80.

Chace, Archibald E., discusses the preparation of tincture of strophanthus and reports a number of experiments to determine the

most satisfactory method for exhausting the drug.—*Am. J. Pharm., Phila.*, 1909, v. 81, pp. 209–215.

Cook, E. Fullerton, reports that distinct drops of oil separate on the top of tincture of strophanthus, and a slight resin-like precipitate clings to the bottom of the bottle. Various methods have been suggested for correcting this but none seem quite so satisfactory as the previous percolation of the drug with purified benzin. One other suggestion, the percolation of the drug with aqueous menstruum and afterwards adding the alcohol, is worthy of careful consideration. The active principle, strophanthin, is very soluble in water.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1004.

Hatcher and Bailey discuss the dosage and mode of exhibiting strophanthus and strophanthin, which they think need further clinical study.—*J. Am. M. Ass.*, 1909, v. 52, pp. 5–9.

An editorial (*Therap. Gaz.*, 1909, v. 33, pp. 493–495) discusses the comparative value of digitalis, squill, and strophanthus, and calls attention to a paper by Hatcher, which seems to indicate that, when strophanthus fails, the failure is due more to difficulty in absorbing the drug than to any lack of activity after it is absorbed.

Bachmann, George, reports sphygmographic study of a case of complete heart block: a contribution to the study of the action of strophanthus on the human heart.—*Arch. Ind. M.*, 1909, v. 4, pp. 238–252.

Fyfe, John William, asserts that strophanthus is a remedy for weak heart from debility of the cardiac muscle with lack of proper contractile power, as shown by a rapid, weak pulse and a very low blood pressure.—*Eclectic Rev.*, 1909, v. 12, pp. 336–337.

McGee, J. B., thinks that strophanthus is conceded to stand next in therapeutic worth to digitalis. Its range of application is quite similar but its greater rapidity of action, less tendency to cumulative effect, and absence of appreciable action on the vessels have made it in some cases preferable to digitalis.—*Merck's Arch.*, 1909, v. 11, p. 82.

Additional references on the pharmacology and uses of strophanthus will be found in *Index Medicus* and *J. Am. M. Ass.*

### STRYCHNINA.

Elvove, Elias, in a report on the fixing power of alkaloids on volatile acids and its application to the estimation of alkaloids with the aid of phenolphthalein or the Volhard method, discusses the estimation of strychnine and reports a number of experimental results.—*Bull. Hyg. Lab. U. S. P. H. & M.-H. S.*, 1909, No. 54, p. 14.

Pinchbeck, G., reports some experimental work on the separation of strychnine from brucine.—*Year-Book of Pharmacy, Lond.*, 1909, pp. 327–331. See also *Chem. & Drug, Lond.*, 1909, v. 75, pp. 228–229.

Malaquin, Paul, presents a new reaction for the characterization of strychnine, based upon the observation that when a solution of a strychnine salt is reduced by means of hydrogen, after treatment with concentrated sulphuric acid, there is obtained a coloration varying from bright red to rose red.—*J. d. pharm. et d. chim., Par.*, 1909, v. 30, pp. 546-549.

Leuchs and Schneider present additional contributions on the chemistry of strychnos alkaloids.—*Ber. d. deutsch. chem. Gesellschaft., Berl.*, 1909, v. 42, pp. 2494-2499, 2681-2685.

Aron and Rothmann report observations on the combined action of strychnine and cocaine on the spinal cord.—*Ztschr. f. exper. Path. u. Therap.*, 1909-10, v. 7, pp. 94-109.

Boldt, H. J., discusses the use of strychnine in gynæcological practice and warns against its administration during pregnancy.—*N. York M. J.*, 1909, v. 89, p. 370.

Jonnesco, Thomas, contributes some remarks on general spinal analgesia, illustrated by five figures showing the method of administering an injection.—*Brit. M. J.*, 1909, v. 2, pp. 1396-1401.

LaFranca, S., reports research to determine the influence of strychnine and of the active principle of convallaria on the normal and degenerated heart.—*Arch. farmacol. sper.*, 1909, v. 8, pp. 316-344.

Dixon, W. E., points out that strychnine has no direct stimulant action on the heart; by exciting the vasomotor center it may slightly increase the cardiac activity indirectly, but it should never be put in the same category with digitalis, lead, or other cardiac drugs.—*Brit. M. J.*, 1909, v. 2, p. 540.

McGee, J. B., asserts that strychnine is one of our most generally used and most trustworthy cardiac tonics. It is, however, rather an emergency than a routine remedy.—*Merck's Arch.*, 1909, v. 11, p. 82.

Wilks, Samuel, has found strychnine to be less manageable than nux vomica and only occasionally uses it. When he does so it is only in a few doses to produce at once some specific effect, and this usually by hypodermic injection.—*Folia Therap., Lond.*, 1909, v. 2, p. 102.

Veley and Waller report an experimental study on the action of the nux vomica alkaloids (strychnine and brucine) upon muscle.—*J. Physiol., Lond.*, 1909-10, v. 39, pp. xxvii-xxix.

Hale, Worth, reports studies in tolerance of strychnine. He concludes that, in dogs, a tolerance of strychnine may be gained, but it is very slowly acquired, and at best is very imperfect. The results for guinea pigs are much less conclusive.—*J. Pharm. & Exper. Therap.*, 1909-10, v. 1, pp. 39-47.

Hoare, E. Wallis (*Vet. Rec.*), in discussing cases of intoxication of animals by strychnine, points out that the doses advised are too large and that greater care is necessary in prescribing it in large doses. He has used strychnine in two grain doses in cows and fre-

quently in grain doses for several days without any appreciable effect.—*Am. Vet. Rev.*, 1909, v. 35, p. 719.

Bringard (*Bull. Vet.*) treated a case of strychnine poisoning in a dog with chloral, which was followed by recovery.—*Am. Vet. Rev.*, 1908-9, v. 34, p. 55.

Sargeant, F., Pilkington, asserts that strychnine, mixed with some suitable bait, is used for the destruction of rats, mice, moles, etc.—*Pharm. J., Lond.*, 1909, v. 83, p. 237.

Additional references on the pharmacology and uses of strychnine will be found in *Index Medicus* and *J. Am. M. Ass.*

#### STRYCHNINÆ NITRAS.

Lamanna, P.-A. (*Chim. Farm.*, July, 1908, 194-196), calls attention to an incompatibility in a prescription containing sodium glycerophosphate, sodium methylarsenate, strychnine nitrate, and distilled water, which gave an abundant precipitate of strychnine.—*Bull. sc. pharmacol., Par.* 1909, v. 16, p. 316.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 324-326) reviews some of the recent literature relating to the use of strychnine nitrate, more particularly its importance with regard to lumbar anæsthesia.

Mittelbach, Wm., suggests the admission of strychnine phosphate to the pharmacopœia. It is quite extensively used by some practitioners in combination with other phosphates.—*Proc. Missouri Pharm. Ass.*, 1909, p. 111.

#### STRYCHNINÆ SULPHAS.

A committee of the *Syndicat général de la Droguerie française* states that strychnine sulphate is soluble in 50 parts of water and not 36.5, as given in the *Codex*, and asks that this be recognized.—*Bull. sc. pharmacol., Par.*, 1909, v. 16, p. 289.

#### STYRAX.

Fleissig discusses the estimation of alcohol soluble and alcohol insoluble portions of liquids storax.—*Schweiz. Wehnschr. f. Chem. u. Pharm.*, Zürich, 1909, v. 47, pp. 184-185.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 54) report that five out of nine samples of styrax were found to be adulterated with fatty matter, colophony, or other substances. They outline several methods for the detection of fatty matter.

Southall Bros. & Barclay (*Rep.*, 1908-9, Birmingham, 1910, pp. 17-18) report examining 13 samples of styrax: soluble in 90 per cent alcohol 60.40 to 77.08 per cent, average 69.0; insoluble in 90 per cent alcohol 0.90 to 6.60 per cent, average 2.6; free balsamic acid as



benzoic 1.10 to 2.32 per cent, average 1.7; combined balsamic acid as benzoic 5.40 to 16 per cent, average 10.3.

#### SUCCUS LIMONIS.

Stock, B. (*J. Pharm. Chim.*, 1909, v. 29, p. 163), reports that lemon juice is now prepared by centrifugating the pulp. It is stated that the juice so obtained is better in flavor, since none of the pips are crushed, as when a press is used; it is also clearer. The residue is easier to handle than the press cake obtained by the older method. Centrifugation would probably be more convenient to work and give better results with other fruits.—*Pharm., J., Lond.*, 1909, v. 28 (82), p. 494.

Gadais, L. and J. (*Bull. soc. chim.*, v. 5, p. 287), discuss a new method of analysis of lemon juice.—*Chem. Abstr. Am. Chem. Soc.*, 1909, v. 3, p. 1626.

#### SULPHONETHYLMETHANUM.

McWalter, J. C., asserts that methyl-sulphonal (trional) has come to stay. In this case, as also with diethylsulphone, piperazine, and stovaine, he asserts, the names are again the difficulty. He recommends that this article be given place in the *Ph. Brit.*—*Chem. & Drug.*, Lond., 1909, v. 74, p. 20.

Goodman, F. M., points out that the chemical name for "trional," diethylsulphonemethylethylmethane, is a word with seven more letters than are contained in the English alphabet. He thinks life is too short and time too fleeting for the ordinary mortal to spend it in trying to pronounce these titles, and suggests a unique system of abbreviation according to which the official title of this article would be "diethsumeëthane."—*Bull. Pharm.*, 1909, v. 23, p. 60.

Hunt, Reid, points out that the word "Trionalum" is included in the Austrian and Swedish pharmacopœias, "methylsulphonal" in the German, "sulphonethylmethane" in the United States, and the full chemical name "diethylsulphonemethylethylmethanum" in the Swiss.—*Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, p. 14.

Beringer, George M., believes that the U. S. P. title for the two sulphone compounds can not be improved on. The extra ethyl group introduced into sulphone (Sulfonal) explains as clearly as is possible why sulphone-ethyl-methane (Trional) is less depressing than the sulphonal with one less ethyl group in its constitution.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 795.

#### SULPHONMETHANUM.

A correspondent reports the death of a man 30 years of age from 20 grains of sulphonal.—*Lancet*, Lond., 1909, v. 176, p. 811.

Morris, H. C. L., reports a case of a man, aged 30, who recovered after taking about 245 grains of sulphonal.—*Brit. M. J.*, 1909, v. 1, p. 1235.

### SULPHUR.

A news note discusses the sulphur industry of Italy, and points out that for the year 1908 the industry showed a distinct improvement, so far as exportation is concerned, but it has by no means recovered from the depression under which it had fallen in 1907.—*Oil, Paint, & Drug Reporter*, New York, 1909, v. 76, Sept. 27, pp. 50–51.

An unsigned article discusses the production of sulphur in Italy, and presents several tables showing that there has been an appreciable reduction in the total output for the year 1907.—*Chem. Ind.*, Berl., 1909, v. 32, pp. 58–59.

Bruhn, G. A., discusses the sulphur of Sicily, and the direct use of sulphur ores in the production of sulphuric acid.—*Ibid.*, pp. 560–565.

An unsigned article calls attention to the annual report for 1908 of the British vice consul on the trade of Sicily, and presents some figures showing the gradual decrease in the amount of sulphur produced. During 1907 the amount of sulphur exported amounted to 341,951 tons, or 59,676 tons less than in 1906.—*Brit. & Col. Drug.*, 1909, v. 56, pp. 258–259.

Peavey, L. (Mining Science), asserts that the largest sulphur mines in the world are located at a place called Sulphur, on the Southern Pacific Railway, in the southwest corner of Louisiana. This sulphur is mined in an original manner and different from any other mine. Large pipes are sunk to where the mineral lies, then steam is turned on, the sulphur melted and pumped up into tanks in a liquid state, and then allowed to cool. When gathered into tanks it is 98 per cent pure.—*Chem. Eng.*, 1909, v. 9, p. 6.

v. Kéler, H., reviews the literature relating to improvements in the sulphur industry.—*Ztschr. f. ang. Chem.*, 1909, v. 22, p. 1396.

Fleischer, E., in a German patent specification, describes the method for obtaining sulphur from metallic sulphides which are decomposed on heating.—*J. Soc. Chem. Ind.*, 1909, v. 28, p. 90.

Schoorl, N., in a discussion of the microchemical analysis of insoluble substances, outlines a method for recognizing sulphur.—*Ztschr. f. anal. Chem.*, Wiesb., 1909, v. 48, pp. 675–677.

Callendar, H. L., presents the results of observations on the melting point of sulphur and points out that the correction to be added to the results obtained by Eumorfopoulos, to allow for the error in the assumed expansion of mercury, would raise his final value of the boiling point of sulphur to 444.55° C., or practically perfect agreement with the value previously assumed.—*Proc. Roy. Soc., Lond.*, 1909–10, v. 83, pp. 106–108.

Kruyt, Hugo R., discusses the dynamic allotropy of sulphur.—*Ztschr. f. physik. Chem.*, 1909, v. 67, pp. 321–342, 486–510.

The examination of drug samples in 1907 shows that of 179 samples of sulphur examined, 4 were found adulterated or not up to standard.—*Pharm. J., Lond.*, 1909, v. 28 (82), p. 182.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 55) report on seven consignments of roll sulphur: Ash from 0.02 to 0.05 per cent; no acidity; and only three samples containing as much as four parts arsenic per million.

Mittelbach, William, asserts that the formula for sulphur ointment is very good.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 817.

An editorial (*J. Therap. & Diet.*, 1909–10, v. 4, p. 64) asserts that sulphur is of especial value as an alterative, particularly in all cutaneous diseases where there is torpor of the glandular system, with a dirty skin that is inclined to be sallow.

Abbott, Solon, asserts that sulphur is indicated in cases of chronic rheumatism with stitching pain. Soles of the feet burning hot at night.—*Ibid.*, 1908–9, v. 3, p. 205.

Sargeant, F. Pilkington, asserts that sulphur is used as a fungicide, either as powder or in the form of vapor.—*Pharm. J., Lond.*, 1909, v. 29 (83), p. 237; also *Drug Topics*, New York, 1909, v. 24, p. 357.

#### SULPHUR PRÆCIPITATUM.

Poulenc Frères state that the Ph. Fr. V requirements for precipitated sulphur, a product without fixed residue and containing no soluble salts, are difficult to realize rigorously in practice.—*Bull. sc. pharmacol., Par.*, 1909, v. 16, p. 410.

Scovell, M. A., reports precipitated sulphur grossly adulterated with calcium sulphate.—*Rep. Kentucky Agric. Exper. Sta.* (1908–9), 1910, p. 6.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 54) report on 16 samples of precipitated sulphur: Ash, from 0.04 to 0.28 per cent; arsenic, the largest quantity found was 5 parts per million in one lot only.

Southall Bros. & Barclay (*Rep.*, 1908–9), Birmingham, 1910, p. 31) experienced a recrudescence of arsenical contamination in precipitated sulphur. Nearly 20 per cent of the large number of samples examined have been rejected on this account, the amount of arsenic in some being as high as 250 parts per million.

#### SULPHUR SUBLIMATUM.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 55) report on 40 samples of sublimed sulphur: Ash, from 0.08 to 0.1 per cent; acidity in terms of sulphuric acid, 0.01 to 0.12 per cent. Only 3 contained more than 4 parts of arsenic per million.

Southall Bros. & Barclay (Rep., 1908-9, Birmingham, 1910, p. 31) assert that in contrast with the precipitated variety sublimed sulphur rarely contains any appreciable amount of arsenic, 0.05 part per million being the maximum observed during the last two years. Excessive acidity is sometimes met with, in one case as much as 0.18 per cent, calculated as  $H_2SO_4$ , was present.

#### SULPHURIS IODIDUM.

An editorial (Critic & Guide, 1909, v. 12, p. 108) asserts that sulphur iodide in the form of oil is very useful in severe cases of impetigo.

#### SUMBUL.

Caldwell, Paul, asserts that fluid extract of sumbul should be changed to tincture.—Bull. Pharm., 1909, v. 23, p. 115.

#### SUPPOSITORIA.

Dunning, H. A. B., reports on a suitable suppository base for use in summer and when a large percentage of solid extract is to be dispensed. He recommends a mixture of cocoa butter with castor oil 10 per cent, white wax 2.5 per cent.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 1142-1144; also Am. Druggist, N. Y., 1909, v. 55, p. 175.

Symes, C., reports finding the addition of 5 per cent of carnauba wax to cacao butter in hot weather to be of advantage in making suppositories, and asserts that the melting point is not increased sufficiently to be in any way injurious.—Pharm. J., Lond., 1909, v. 29 (83), p. 217.

Dörr (Südd. Apoth. Zeit.) recommends a method of preparing suppositories, based upon the observation that when melted and grated cacao butter are mixed, the mixture congeals very rapidly. For making 20 suppositories, he melts 1 ounce of cacao butter on the water bath, and stirs into it any medicament required, triturates with 1 ounce more of cacao butter, then immediately pours the whole into molds. Within 3 to 4 minutes the suppositories become hard.—Drug Topics, New York, 1909, v. 24, p. 115.

Schleimer, A., discusses the making of compressed tablets and suppositories.—Merck's Rep., 1909, v. 18, p. 118.

An unsigned abstract (Apoth. Ztg., 1909, No. 64) describes and illustrates a new suppository and bougie press.—Pharm. Zentralh., 1909, v. 50, pp. 959-960.

#### SUPPOSITORIA BOROLYGERINI N. F.

Diehl, C. L., reports from the committee on N. F., pointing out that the present formula for suppositories of boroglycerin does not pro-

duce boroglycerin but a glycerite of boric acid. A formula is presented.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1085.

#### SUPPOSITORIA GLYCERINI.

Schamelhout, A., notes that the French glycerin suppositories are prepared with cacao butter; the Belgian with gelatin.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 81.

Düsterbehn points out that the Ph. Fr. V suppositories of glycerin are to weigh 3 gm., and to consist of one part of glycerin and two parts of oil of theobroma.—Apoth. Ztg., Berl., 1909, v. 24, p. 240.

A committee of the Syndicat général de la Droguerie française recommends 30, in place of 20 gm. of cacao butter.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 290.

#### SYRUPI.

[NOTE.—Following Government Printing Office style, which is governed by Webster's International Dictionary, the spelling "sirup" is used in this publication.]

Düsterbehn points out that the Ph. Fr. V still contains a total of 51 sirups compared to the 106 contained in the Ph. Fr. IV and the total of 18 contained in the Ph. Germ. IV.—Apoth. Ztg., Berl., 1909, v. 24, p. 281.

Dieterich and Mix, in a discussion on the valuation of galenical preparations, enumerate the determinable physical characteristics of the official Ph. Germ. IV and some unofficial sirups.—Pharm. Zentralb., 1909, v. 50, pp. 730-731.

Cook and Ebner report a series of experiments on some U. S. P. sirups made from fluid extracts, including sirup of krameria, sirup of rubus, sirup of senega, and sirup of senna, for all of which they present modified formulas.—Proc. Am. Pharm. Ass., 1909, v. 57, pp. 1004-1008.

Schimmel, M. S., asserts that elixirs and sirups made from fluid extracts are bad and could not be worse. He further adds that one can not go into two different stores and find the same kinds of sirup or elixir, even when made according to the U. S. P. or N. F., that will look alike.—Pharm. Era., 1909, v. 42, p. 496.

Flemer, Lewis, points out that, when it is necessary to use fluid extract in the preparation of elixir or sirup, more satisfactory results can be obtained by triturating the fluid extracts, oils, or other flavoring agents with purified talcum, pumice, or precipitated calcium phosphate and a portion of water, allow to stand a reasonable time before filtration, after which add the other ingredients.—Western Druggist, Chicago, 1909, v. 31, p. 338.

Beringer and Beringer discuss some of the sirups of the U. S. P. and N. F.—Proc. New Jersey Pharm. Ass., 1909, pp. 88-101. See also Am. J. Pharm., Phila., 1909, v. 81, pp. 311-326.

Nixon, C. F., discusses pharmacopœial sirups and presents a number of suggestions for their improvement.—*Apothecary*, 1909, v. 21, April, pp. 17–19.

Cook, E. Fullerton, discusses the sirups of the National Formulary, and presents a number of suggestions for their improvement.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 186.

Bruder, Otto E., thinks that sirups should be directed to be stored in a cool place and in small bottles. The bottles should be closed with rubber stoppers, as this is conducive to cleanliness and overcomes the ever-present danger of the ordinary cork stopper becoming cemented in the neck of the bottle.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 964.

Barnard, H. E., reports investigations concerning the keeping qualities of sugar sirups, fruit sirups, and crushed fruits.—*Proc. Ass. Off. Agric. Chem.*, 1909, 26th Ann. Conv., pp. 66–71 (*Bull. Bur. Chem. U. S. Dept. Agric.*, 1910, No. 132).

Diehl, C. L., reports from the committee on N. F. the recommendation to omit the paragraphs under "Syrupi," or, if any part is to remain, to omit the last paragraph and substitute a paragraph which is presented.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1086.

#### SYRUPUS.

Nixon, C. F., discusses the pharmacopœial directions for making simple sirup, and in view of the fact that this preparation is practically a saturated solution of sugar in water, suggests retaining not above 15 cc. of water for washing the filter.—*Apothecary*, 1909, v. 21, April, p. 17.

Dunn, John A., asserts that the best sugar for use for simple sirup is what is known in the market as "Crystal A" confectioner's sugar. This fact has been mentioned by many different people but still does not seem to be taken advantage of by the pharmacists generally.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 950.

Havenhill, L. D., states that, if the official directions be followed in making one liter or less of sirup, it is rarely of the official strength, and suggests a modification of the method for small quantities.—*Proc. Kansas Pharm. Ass.*, 1909, p. 64.

#### SYRUPUS ACIDI CITRICI.

Nixon, C. F., points out that the official directions for making sirup of citric acid yield a product that is cloudy. He suggests adapting the formula for sirup of orange to this preparation.—*Apothecary*, 1909, v. 21, April, p. 17.

Schamelhout, A., states that the sirup of citric acid of the Ph. Fr. V is 1 per cent; that of the Ph. Belg. III is 2 per cent.—*Bull. Soc. roy. d. pharm. Brux.*, 1909, v. 53, p. 77.

## SYRUPUS ACIDI HYDRIODICI.

Dunn, John A., asserts that sirup of hydriodic acid will keep a much better color when a pure sugar is used for making the simple sirup.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 950.

## SYRUPUS ACTÆÆ COMPOSITUS N. F.

Posey, H. G., asserts that Syrupus Actææ Compositus would be more correctly Syrupus Cimicifugæ.—*Ibid.*, p. 993.

Hilton, Samuel L., thinks the formula for compound sirup of actæa is unsatisfactory, for the reason that it is almost impossible to obtain a clear preparation. Some experimenting should be done to see if this objection can not be overcome; possibly the use of glycerin will have the desired effect.—Pharm. Era., 1909, v. 41, p. 254.

## SYRUPUS AMYGDALÆ.

Beringer and Beringer point out that the U. S. P. VIII has discarded the formula for sirup of almonds made from an emulsion of almonds, although this method is still retained in the foreign pharmacopœias.—Am. J. Pharm., Phila., 1909, v. 81, p. 313.

Schamelhout, A., calls attention to the different proportions in the French and Belgian sirups of almond.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 77.

## SYRUPUS AURANTII FLORUM.

Beringer and Beringer think that stronger orange flower water should be directed in sirup of orange flowers.—Am. J. Pharm., Phila., 1909, v. 81, p. 313.

## SYRUPUS AURANTII.

Beringer and Beringer think that the present official method for making sirup of orange is destructive of the fine aroma of the tincture of sweet orange peel and leaves with the magnesium carbonate a large proportion of the flavor.—*Ibid.*, 1909, v. 81, p. 313.

## SYRUPUS BROMIDORUM N. F.

Posey, H. G., asserts that Syrupus Bromidorum could be much more appropriately termed Syrupus Bromidi Compositus, that title being much more in keeping with its composition than the present one.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 993.

## SYRUPUS CALCII CHLORHYDROPHOSPHATIS N. F.

Diehl, C. L., reports from the committee on N. F. recommending the deletion of the second synonym of Syrupus Calcii Chlorhydrophosphatis N. F.—*Ibid.*, 1909, v. 57, p. 1086.

Schamelhout, A., notes that the French sirup of calcium chlorhydrophosphate contains 1.25 per cent of bicalcium phosphate; the Belgian sirup contains 1.55 per cent.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 77.

**SYRUPUS CALCII ET SODII HYPOPHOSPHITUM N. F.**

Diehl, C. L., reports from the committee on N. F. recommending the deletion of the second synonym.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1086.

**SYRUPUS CALCII HYPOPHOSPHITIS N. F.**

Diehl, C. L., reports from the committee on N. F. the recommendation to delete the synonym: "Sirup of hypophosphite of lime."—*Ibid.*, p. 1086.

**SYRUPUS CHONDRI COMPOSITUS N. F.**

Cook, E. Fullerton, points out that the title of compound sirup of chrondrus is open to discussion, as it is named after its least active constituent.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 186.

Hilton, Samuel L., thinks that the formula for compound sirup of Irish moss is unsatisfactory, for while clear when first made it does not remain so. It contains the mucilaginous principles from 1 gm. of Irish moss to 1,000 cc. of finished sirup, too small an amount of the drug for the preparation to receive the name.—Pharm. Era, 1909, v. 41, p. 254.

**SYRUPUS CODEINÆ.**

Schamelhout, A., notes that the sirup of codeine of the Ph. Fr. V contains 0.2 per cent of codeine as did the old Ph. Belg. The Ph. Belg. III sirup contains 0.3 per cent of codeine phosphate.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 77.

**SYRUPUS COFFEE N. F.**

Cook, E. Fullerton, expresses the belief that in the sirup of coffee the quantity of boiling water should be increased 50 per cent, the quantity in the present formula being practically all absorbed in the coffee grounds. He also points out that hot percolation is a better process to follow.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 186.

Diehl, C. L., reports from the committee on N. F. recommending the inserting of "in fine powder" after the word "roasted"; directions for making the preparation are presented.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1086.

**SYRUPUS ERIODICTYI AROMATICUS N. F.**

Cook, E. Fullerton, expresses the belief that in aromatic sirup of eriodictyon, 15 gm. of purified talc should be added to the mixture



of fluid extract, tincture, and oils before filtering.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 186.

He also thinks it would be better if the strong alkalinity of aromatic sirup of eriodictyon were indicated in the title.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 962.

#### SYRUPUS FERRI SACCHARATI SOLUBILIS N. F.

Cook, E. Fullerton, asserts that the process for making sirup of soluble saccharated iron is tedious and the product is unsatisfactory. A more satisfactory method is to make the sirup from a previously prepared ferric saccharate.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 186.

Diehl, C. L., reports from the committee on N. F. recommending the omission of "(G. P.)" after "Syrupus Ferri Oxydatis Solubilis."—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1087.

#### SYRUPUS FERRI CITRO-IODIDI N. F.

Cook, E. Fullerton, expresses the belief that to obviate the presence of free iodine in sirup of citro-iodide of iron, 10 gm. of starch should be added to the solution and the mixture shaken and filtered before introducing the sugar.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 186.

Diehl, C. L., reports from the committee on N. F. recommending changes in directions for sirup of citro-iodide of iron.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1087.

#### SYRUPUS FERRI HYPOPHOSPHITIS N. F.

Diehl, C. L., reports from the committee on N. F. recommending and presenting a change in formula and directions for sirup of ferric hypophosphate.—*Ibid.*, p. 1089.

#### SYRUPUS FERRI IODIDI.

Schamelhout, A., notes that the French sirup of iodide of iron contains 0.5 per cent of iodide as did the old Ph. Belg. This is a derogation to the prescriptions of the International Conference for the unification of heroic medicaments. It contains 0.1 of tartaric acid and is not aromatised.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 78.

Queriault, H. (J. d. Pharm. et Chim., 1909, v. 30, pp. 454-455) comments on the properties of the French Codex sirup of ferrous iodide and the use of tartaric acid as a preservative.

Schirmer, W., discusses the valuation of sirup of ferrous iodide, and points out that the assay method recommended by the Brussels Conference determines halogen ions rather than iodine. He recom-

mends the determination of the iodine ion by means of a ferric iron salt.—*Apoth. Ztg.*, Berl., 1909, v. 24, pp. 160–161.

Korndörfer, Ad., outlines a method for determining the ferrous iodide present in sirup of ferrous iodide by means of hydrogen dioxide solution and dilute sulphuric acid, dissolving the liberated iodine in chloroform and titrating the superfluous hydrogen dioxide with potassium permanganate and subsequently determining the iodine by sodium thiosulphate solution.—*Ibid.*, pp. 850–851.

Sawyer, Herbert G., outlines a method for making and preserving sirup of ferrous iodide. He suggests bottling the preparation while still hot in small vials, varied in size, according to the needs of the pharmacist, and sealing with a mixture of paraffin and white wax.—*Bull. Pharm.*, 1909, v. 23, p. 254.

Baughman, Leo M., comments on the U. S. P. formula for sirup of ferrous iodide, and points out that the iron is already present in excess and that the directions providing for the reaction to take place slowly are designed to avoid the vaporization of the iodine.—*Ibid.*, p. 342.

Harries, in commenting on the keeping properties of sirup of ferrous iodide, expresses the opinion that it was a moot point as to whether hypophosphorous acid should be used because, if it prevented decomposition in the bottle, it might undoubtedly prevent decomposition in the stomach, and it was conceivable that its therapeutic value might be altered by such an addition.—*Pharm. J.*, Lond., 1909, v. 28 (82), p. 366.

Dunn, John A., asserts that the diluted hypophosphorous acid used in the formula for sirup of ferrous iodide to preserve the green color has been found unsatisfactory. He recommends the use of one-quarter of 1 per cent of citric acid. The sugar used in this as in all sirups should be what is known as Confectioner's "Crystal A sugar."—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 950.

Alcock, F. H., recommends the use of reduced iron for making sirup of ferrous iodide, in place of the iron wire officially recommended, and enumerates some of the advantages of this form of iron.—*Pharm. J.*, Lond., 1909, v. 28 (82), p. 366; also *Brit. & Col. Drug.*, 1909, v. 55, pp. 216–217.

Bachman, Gustave, reports that in the sirup of ferrous iodide examined he found 3.54 per cent minimum and 8.73 per cent maximum. The sample containing 8.73 per cent no doubt was one of the sirups that was official in the 1890 Pharmacopœia, and the pharmacist who dispensed it was no doubt ignorant of the fact that the strength of the 1900 U. S. P. sirup is 5 per cent and not 10 per cent as was formerly the case.—*Proc. Minnesota Pharm. Ass.*, 1909, p. 70.

Arny, H. V., reported eight samples of sirup of ferrous iodide examined; six were up to U. S. P. requirements; the others were 3.6 and 4 per cent ferrous iodide.—*Proc. Ohio Pharm. Ass.*, 1909, p. 67.

The inspectors of Belgian pharmacies remark that the activity of the officinal sirup of the iodide of iron, which has been increased ten-fold, is sometimes embarrassing to the pharmacist, when the physician prescribes large doses for young infants. A good many physicians prescribe in such case the sirup of the old Pharmacopœia. They add that most of the solutions of iodide of iron sold in commerce are no good; they are poorly proportioned and keep very badly.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 625.

Schamelhout, A., notes that the Pharmacopœia allows the use of the solution only for the sirup of ferrous iodide. It should be made when needed. This solution is very easy to make and keeps very well.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 267.

Hammond and Meadowcroft report a number of experiments on the incompatibility between sirup of phosphates of iron, quinine, and strychnine and sirup of iron iodide.—*Pharm. J., Lond.*, 1909, v. 29 (83), p. 389.

#### SYRUPUS FERRI LACTOPHOSPHATIS N. F.

Diehl, C. L., reports from the committee on N. F. presenting a proposed change in formula and directions.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1087.

#### SYRUPUS GLYCYRRHIZÆ N. F.

Posey, H. G., asserts that a much nicer, better flavored and more permanent preparation is made by percolating ground licorice root with a weak (0.1 per cent) solution of ammonium carbonate evaporating to 250 cc. and dissolving 850 gm. of sugar in the liquid. (Scoville, *Bull. Pharm.*, 1907, p. 391).—*Ibid.*, p. 993.

#### SYRUPUS HYDROCHLOROPHOSPHATUM N. F.

Posey, H. G., asserts that according to Nitardy (*Bull. Am. Pharm. Ass.*, 1907, p. 381-382) it has been found impossible to prepare this sirup according to the N. F. directions of manipulation. The title of this sirup seems to be a misnomer, it is misbranded under the food and drugs act.—*Ibid.*, pp. 993-994.

#### SYRUPUS HYPOPHOSPHITUM COMPOSITUS.

Fussell, M. H., thinks that compound sirup of hypophosphites should be relegated to the National Formulary.—*Tr. Am. M. Ass., Sec. Pharm. & Therap.*, 1909, p. 206.

## SYRUPUS HYPOPHOSPHITUM.

Nixon, C. F., asserts that sirup of hypophosphites is satisfactory if the tincture of lemon peel is left out. With it the sirup soon acquires a musty and a terebinthinate odor and taste.—Apothecary, 1909, v. 21, April, p. 19.

Sayre and Zieffe report one sample of sirup of hypophosphites examined, which was below standard.—Bull. Kansas Bd. Health, 1909, v. 5, D. A., 16-23.

## SYRUPUS IODOTANICUS.

Harlay, V., presents a note on the iodotannic sirup of the Ph. Fr. V.—J. d. pharm. et d. chim., Par., v. 29, pp. 159-161.

He also discusses the avoidance of the inversion of sugar in the iodotannic sirup of the Ph. Fr. V.—*Ibid.*, v. 30, pp. 345-349.

Douris, Roger, presents a note on "Sirop iodotannique," its composition and the estimation of iodine therein.—Bull. sc. pharmacol., Par., 1909, v. 16, pp. 200-203.

Faugouin says that, though prepared exactly according to the method of the Ph. Fr. V, this sirup gives the pharmacist all sorts of trouble. He asks how this may be avoided and whether one may dispense a sirup other than that prescribed by the pharmacopœia—questions which are answered by the editor.—*Ibid.*, p. 663.

Bourdeaux presents a study on iodotannic sirup. He thinks that 2 per cent of sirup of hydriodic acid will produce the same effects and avoid the disagreeable effects of tannin on the organism.—J. d. pharm. d'Anvers, 1909, v. 65, pp. 507-517.

## SYRUPUS CALCII LACTOPHOSPHATIS.

Nixon, C. F., asserts that sirup of calcium lactophosphate darkens somewhat by age, due probably to caramelization. This can not be avoided, and the sirup should be made at short intervals.—Apothecary, 1909, v. 21, April, p. 18.

## SYRUPUS MORPHINÆ COMPOSITUS N. F.

Diehl, C. L., reports from the committee on N. F. recommending the deletion of compound sirup of morphine.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1088.

## SYRUPUS PAPAVERIS N. F.

Posey, H. G., asserts that the note appended to the formula for sirup of poppy tells us that "the product is identical with the"

upus *Papaveris* of the British Pharmacopœia." As the Ph. Brit. contains no formula for a sirup from *Papaver somniferum*, but from *Papaver rhæoados*, he thinks that the framers of the present N. F. went a little too fast, and, in fact, were exceptionally prolific in writing notes. This note should be omitted.—*Ibid.*, p. 994.

Beringer and Beringer assert that tincture of poppy was introduced solely for the preparation of the sirup. They think this can be much better prepared direct from the powdered poppy capsules and submit a formula.—Proc. New Jersey Pharm. Ass., 1909, p. 96. Also Am. J. Pharm., Phila., v. 81, pp. 320-321.

Diehl, C. L., reports from committee on N. F., recommending the deletion of the first formula for sirup of poppy and the modification of the other.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1088.

The Belgian inspectors of pharmacies report that certain pharmacists still prepare diacode sirup with white poppy, which varies greatly in activity and is always uncertain. Certain physicians also insist upon demanding the sirup of the old Pharmacopœia. This is a mistake; there should be offered to them a preparation of sure action and always alike.—J. d. pharm. d'Anvers, 1909, v. 65, p. 626. See also Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 270.

#### SYRUPUS PECTORALIS N. F.

Posey, H. G., thinks the title *Syrupus Pectoralis* should be changed.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 994.

Cook, E. Fullerton, asserts that pectoral sirup is subject to severe condemnation as a preparation for popular use, inasmuch as the active ingredient is morphine hydrochloride. Its sale should be discouraged.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 186. Also Proc. Am. Pharm. Ass., 1909, v. 57, p. 962.

Hilton, Samuel L., points out that pectoral sirup is another case of misbranding. The name should be changed, and if it is desired to retain the preparation in the Formulary, the original formula with sassafras pith is far preferable to the present formula made with oil of sassafras. Further, the title does not disclose that it contains morphine.—Pharm. Era, 1909, v. 41, p. 254.

Blair, Henry C., objects to the use of the name Jackson's Pectoral Sirup, in connection with a preparation that is entirely different from the substance originally sold under that name.—Proc. Pennsylvania Pharm. Ass., 1909, p. 198.

Diehl, C. L., reports from the committee on N. F., objecting to the presence of such a formula in the N. F., and especially since its chief activity is due to morphine hydrochloride. Since there exists a popular demand for it, however, there should be a standard formula. The public should be educated to avoid the use of such a preparation,

and every pharmacist should assist in this education.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1088.

#### SYRUPUS PHOSPHATUM COMPOSITUS N. F.

Parse, A. C., presents some historical notes and a new manipulation to prevent darkening of the compound sirup of phosphates, N. F.—Proc. Arkansas Pharm. Ass., 1909, p. 83. Also Southern Pharm. J., 1908-9, v. 1, pp. 497-498.

Cook, E. Fullerton, reports that one contributor says that the present formula for compound sirup of phosphates produces more than the 1,000 cc. without the addition of water. Omit the 75 cc. of glycerin and, with that exception, permit the formula to remain as at present.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 962.

He also reports Wm. L. Cliffe as saying that the formula and process for compound sirup of phosphates with quinine and strychnine give very unsatisfactory results. The strychnine and quinine should be dissolved in the mixed solution of iron and other salts; the sugar should be reduced to 425 gm. and the 50 cc. of glycerin dropped.—*Ibid.*, p. 962.

#### SYRUPUS PICIS LIQUIDÆ.

Schamelhout, A., notes that the French sirup of tar corresponds to 1 gm. of tar per 280 gm. of sirup. The sirup of the [Belgian] formulary contains 2.5 per cent of tar water instead of 0.25 gm. of tar per 100 gm. of sirup.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 78.

#### SYRUPUS PINI STROBI COMPOSITUS N. F.

La Wall, Charles H., raises the question as to whether there should not be some indication, in the title of compound sirup of white pine, as to its morphine content of one-thirtieth grain to the teaspoonful.—Boston M. & S. J., 1909, v. 160, p. 623.

Posey, H. G., asserts that the formula for compound sirup of white pine is one of the best all-around formulas which have ever formed part of any formula book, and but for the timidity of some persons, could remain just as it is. As the morphine content is very low, and thereby is of very doubtful therapeutic value, he suggests its omission.—Proc. Pharm. Ass., 1909, v. 57, p. 994.

Hilton, Samuel L., points out that all of the drugs in sirup of white pine compound, with the exception of morphine, have been decreased in the last revision without any apparent justification. All of the pharmaceutical manufacturers, with one exception, make the preparation much weaker.—Pharm. Era, 1909, v. 41, p. 254.

Diehl, C. L., reports from the committee on N. F. recommending the reduction of the amount of morphine to 0.4 gm. as suggested by Hilton, if it is to be retained.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1088.

Members of the Chicago branch are reported as being in favor of omitting the morphine from the formula for sirup of white pine compound, largely because of the fact that this sirup is frequently prescribed for children.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 123.

Beringer and Beringer note that compound sirup of white pine has been subjected to considerable criticism largely because it has become popular and there is a well-grounded objection to selling popular remedies containing morphine. They do not approve of emasculating the preparation by cutting out the morphine, and submit an improved formula.—Proc. New Jersey Pharm. Ass., 1909, p. 97. Also Am. J. Pharm., Phila., 1909, v. 81, pp. 321-323.

Dunlap, Renwick W., reports one sample of sirup of white pine examined, not passed.—Rep. Ohio Dairy & Food Com., 1909, p. 60.

Henkel, Alice, describes and illustrates *Pinus strobus* L., enumerates the common names, discusses the habitat and range, gives a description of the tree and bark, and discusses the prices and uses.—Bul. Bur. Plant Ind., U. S. Dept. Agric., 1909, No. 139, pp. 9-10.

#### SYRUPUS QUINIDINÆ N. F.

Beringer and Beringer think that the inclusion of sirup of quinidine in the National Formulary appears to have been to place before the physician a formula that would displace a proprietary sirup. They think the preparation is unsatisfactory and propose a formula using the official sirup, with oil of orange as the flavor.—Am. J. Pharm., Phila., 1909, v. 81, p. 323. Also, Proc. New Jersey Pharm. Ass., 1909, p. 98.

Posey, H. G., thinks that sirup of quinidine is not an ideal preparation in that mucilage of acacia is prone to become sour and if used in that condition in this preparation (which often will be done inadvertently) the bitterness of the alkaloid will be apparent. Saccharin has no place in this preparation, for there should be no bitter taste to mask, in fact there will be none if a good quality of granulated or powdered acacia be used instead of mucilage.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 994.

Diehl, C. L., reports from the committee on N. F. recommending the omission of the saccharin.—*Ibid.*, p. 1089.

#### SYRUPUS RHAMNI CATHARTICÆ N. F.

Beringer and Beringer assert that buckthorn is grown only infrequently in the United States as a shrub and supplies of fresh berries

are not available to the American pharmacist and so he can not prepare the juice. They suggest that this sirup be made from buckthorn berries.—*Am. J. Pharm.*, Phila., 1909, v. 81, pp. 323–326. Also, *Proc. New Jersey Pharm. Ass.*, 1909, p. 99.

Posey, H. G., points out that, as the fermented juice of buckthorn berries is not obtainable in the average drug markets, this formula is of very little use and should be replaced with one made from the fluid extract of the berries, both the fermented juice and the fluid extract of the berries being very active hydragogue cathartics, the replacing of one with the other would produce an equally effective preparation.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 994–995.

Cook, E. Fullerton, asserts that the formula for the sirup of buckthorn should direct its preparation from the fluid extract.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 962. Also, *Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 186.

Diehl, C. L., reports from the committee on N. F. the recommendation that sirup of rhamnus cathartica be dropped because it is impossible to obtain the fermented juice on the market. Furthermore, the preparation is seldom used, being largely replaced by other preparations.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1089.

Schamelhout, A., notes that the Ph. Fr. V requires that in the preparation of sirup of buckthorn berries the juice be concentrated, as in the old Ph. Belg.; but only 100 parts of juice are employed to 100 parts of sugar. The old Ph. Belg. employed 150 parts of juice to 100 of sugar, and the Ph. Belg. III no longer concentrates the juice.—*Bull. Soc. roy. d. pharm.*, Brux., 1909, v. 53, p. 78.

#### SYRUPUS RUBI AROMATICUS N. F.

Diehl, C. L., reports from the committee on N. F. recommending a change in directions for making aromatic sirup of blackberry.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1089.

#### SYRUPUS SARSAPARILLÆ COMPOSITUS.

Beringer and Beringer discuss the preparation of compound sirup of sarsaparilla and suggest a formula according to which this sirup is made directly from the powdered drugs, using a mixture of glycerin and water as a menstruum.—*Am. J. Pharm.*, Phila., v. 81, pp. 318–319. Also, *Proc. New Jersey Pharm. Ass.*, 1909, p. 94.

Schamelhout, A., notes that the French compound sirup of sarsaparilla is prepared by infusion and contains sarsaparilla, borage flowers, pale rose petals, senna leaves, green anise fruit, and honey. The Belgian sirup is prepared with the fluid extracts of sarsaparilla, of glycerin and senna, and spirit of anise.—*Bull. Soc. roy. d. pharm.*, Brux., 1909, v. 53, p. 79.



**SYRUPUS SENEGB.**

Beringer and Beringer assert that neither the fluid extract of senega U. S. P. nor the sirup made therefrom has in their experience proven satisfactory. They suggest making the sirup directly from the drug and report having obtained the best results by extraction of the drug with ammonia as the alkali. They submit a formula.—*Am. J. Pharm., Phila., 1909, v. 81, p. 320.*

**SYRUPUS SENNÆ AROMATICUS N. F.**

Taylor, Augustus Carrier, points out that *syrupus sennæ aromaticus N. F.* contains senna, rhubarb, and jalap; *syrupus sennæ compositus N. F.* contains senna, rhubarb, and frangula. He suggests finding which of these two is preferred by the doctor and dropping the other.—*Pharm. Era, 1909, v. 41, p. 493.*

Cook, E. Fullerton, points out that in the formula for aromatic sirup of senna, 800 gm. of sugar are called for. He was unable to dissolve more than 450 gm. and that only with great difficulty.—*Bull. Am. Pharm. Ass., 1909, v. 4, p. 186.*

**SYRUPUS SCILLÆ COMPOSITUS.**

Beringer and Beringer find the official method for the preparation of compound sirup of squill unsatisfactory and propose a method for the direct extraction of the powdered drugs.—*Proc. New Jersey Pharm. Ass., 1909, p. 95.* Also *Am. J. Pharm., Phila., 1909, v. 81, p. 319.*

**TALCUM.**

An editorial (*Rocky Mt. Drug, v. 23, 1909, p. 8*) commenting on the purified talcum of the U. S. P. points out that talcum is cheap and should be washed recklessly in order to secure an article that is comparatively free from impalpable powder, and more suitable for laboratory purposes.

An abstract (*Oil & Color Trades J.*) calls attention to a number of uses to which talc is being put at the present time.—*Drug Topics, New York, 1909, v. 24, p. 153.*

**TARAXACUM.**

Schneider, Albert, points out that dandelion can be grown in any country. It is a common weed.—*Pacific Pharmacist, 1909-10, v. 3, p. 192.*

Kebler, L. F., reports a sample of dandelion root which was found to contain 34 per cent of ash. This, he asserts, means about 25 per cent of inorganic material deliberately added.—*Am. J. Pharm., Phila., 1909, v. 81, p. 75.*

Dunn, John A., asserts that the formula for fluid extract of dandelion in the U. S. P. VIII is faulty and that the addition of sodium hydroxide causes precipitation.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 947.

Feldhaus, Julius, reports finding the specific gravity of fluid extract of taraxacum U. S. P. varying from 0.99 to 1.051; the extract content of the preparation varied from 6 to 20 per cent. All of the several samples were clear and transparent.—Pharm. Ztg., Berl., 1909, v. 54, p. 58.

#### TEREBENUM.

Kline, C. M., reports that 0.51 per cent of resinous substance was found in one sample of terebene.—Proc. N. W. D. A., 1909, p. 135. Also Proc. Pennsylvania Pharm. Ass., 1909, p. 181.

Sargeant, F. Pilkington, asserts that terebene is used in soap emulsions for the destruction of aphides on indoor plants.—Pharm. J. Lond., 1909, v. 29 (83), p. 237. Also Drug Topics, New York, 1909, v. 24, p. 357.

#### TEREBINTHINA.

Richmond, Geo. F., discusses the possibilities of turpentine products from the pine forests of Benguet Province, Luzon.—Philippine J. Sc., 1909, v. 4, A., pp. 231-232.

Vèzes, M., presents a comprehensive review with illustrations of the resin industry of the Landes, France.—Sc. & Ind. Bull. Roure-Bertrand Fils, Grasse, April, 1909, pp. 3-24.

#### TEREBINTHINA CANADENSIS.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 18) report that the acid value of 11 samples ranged from 80.1 to 98, and the saponification value from 89 to 105. All were soluble with turbidity in absolute alcohol. One sample of Oregon balsam had an acid value of 80, saponification value of 86. It was entirely soluble in absolute alcohol.

#### THEOBROMINE.

Capps, Pratt, McCrae, and Halsey assert that the value of theobromine seems sufficiently established. They recommend this drug for inclusion in the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

Patta, A., reports experiments to determine the composition of sodium and theobromine salicylate obtained from various sources.—Arch. farmacol. sper., 1909, v. 8, pp. 202-205.

Frey, Otto, discusses the testing of commercial theobromine sodium salicylate.—Pharm. Post. Wien, 1909, v. 42, pp. 753-757. Also, Ztschr. d. allg. österr. Apoth.-Ver., Wien, 1909, v. 47, pp. 433-434.

Brown, Alexander G., discusses the use of theobromine in the therapeutic management of arteriosclerosis.—Tr. Am. M. Ass., Sec. Pharm. Therap., 1909, p. 32.

McGee, J. B., asserts that caffeine, theobromine, and their compounds not only stimulate the heart but also secondarily dilate the vessels, theobromine being the more active of the two in this respect.—Merck's Arch., 1909, v. 11, p. 83.

### THYMOL.

Schimmel & Co. (Semi-Annual Report, April, 1909, p. 144) assert that thymol is soluble to the extent of 200:100 of 96 per cent alcohol; 30:100 of 70 per cent alcohol; 0.1:100 of glycerin; 50:100 of olive oil; and 5:100 of paraffin oil.

Roure Bertrand Fils (Sc. & Ind. Bull. Grasse, October, 1909, pp. 116-117) present a review of the recent literature relating to thymol.

Fonde, G. H., calls attention to the value of thymol administered in punctured capsules in large doses in amœbic dysentery.—J. Am. M. Ass., 1909, v. 52, p. 230.

An editorial (J. Am. Inst. Homœop., 1909, v. 1, pp. 539-540) comments on the work done by C. Wardell Stiles who is quoted as recommending thymol as a treatment for uncinariasis.

The J. Am. M. Ass., 1909, v. 53, p. 1307, quotes from Public Health Reports, Stiles's method of treatment of hookworm disease.

Sargeant, F. Pilkington, asserts that thymol is used as a vermifuge for poultry and is given in 1-grain doses.—Pharm. J., Lond., 1909, v. 29 (83), p. 237. See also Drug Topics, New York, 1909, v. 24, p. 357.

### THYMOLIS IODIDUM.

Gane and Webster discuss the determination of iodine in thymol iodide, and present their results from the examination of 5 samples.—Ztschr. f. ang. Chem., 1909, v. 22, pp. 1060-1061, 1190-1191. See also Drug Topics, New York, 1909, v. 24, pp. 52-53.

The committee on drug market reports thymol iodide varying greatly in quality. Five lots from different sources assayed as follows: Chlorine, none to 8.01 per cent; ash, 0.4 to 2.8 per cent; ether insoluble matter, 0.5 to 5.6 per cent; metallic impurities K, Ca, Fe, Al.; apparent iodine content, 44.22 to 54; actual iodine, 25.36 to 44.6; inorganic iodine, 0.67 to 3.65; iodine combined with thymol, 24.44 to 42.75; thymol iodide, 53.04 to 92.47.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 739.

The Belgian inspectors of pharmacies report many samples of aristol extremely insoluble in alcohol and containing alkaline salts; poorly prepared products, not containing the required iodine content are not infrequent.—J. d. pharm. d'Anvers, 1909, v. 65, p. 585.

Schamelhout, A., suggests that the above refers to biiodobithymol, and not to aristol, a product of Bayer & Co., said to contain 45 per cent of iodine and to be easily soluble in alcohol, ether, and fatty oils, leaving a slight residue. The Ph. Belg. III states that biiodobithymol is slightly soluble in alcohol and easily soluble in ether and fatty oils and contains 46 per cent of iodine.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 235.

#### TINCTURÆ.

Snow, C. M., advocates the adoption of general formulas for tinctures, and thinks that the adoption of this principle would have many advantages.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 90.

Diehl, C. L., reports from the committee on N. F. recommending the deletion of the general heading "Tincturæ."—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1090.

An unsigned article points out that the Homœopathic Pharmacopœia of the United States fixes the uniform strength of tinctures at one-tenth or 10 per cent drug strength, so that, irrespective of whether the tincture is made from a fresh or dried plant, it represents 1 part of the dried crude drug in every 10 parts of tincture.—J. Am. Inst. Homœop., 1909, v. 1, p. 35.

The editor of the "Pharmacology" column (J. Am. M. Ass., 1909, v. 53, p. 1930), thinks that a suggestion which will probably meet much favor at the hands of physicians, who should really have the larger share in deciding the point, is that all tinctures shall be made of uniform percentage strength.

Mittelbach, William, thinks that the making potent tinctures all of uniform strength (10 per cent) was good and in line with progress. He suggests including the remainder of the official tinctures in this list, making them all 10 per cent. With one exception this can be done. Paregoric can be given a new dress and placed with the elixirs.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 819.

Astruc, A., makes a comparison of certain tinctures of the Ph. Fr. IV (1884), and the Ph. Fr. V (1908), showing that the former are about twice as concentrated as the latter.—Bull. pharm. d. sud-est, 1909, v. 14, pp. 349-353.

Berger, Fr., in discussing the tinctures of the Ph. Helv. IV, points out that this Pharmacopœia defines a tincture as an extract of a plant or animal drug or a solution of other substances. He also points out that 35 of the official tinctures are directed to be made by percolation, while 24 are to be made by maceration, and 6 by simple solution or dilution.—Schweiz. Wchnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, pp. 77-80.

"ndj" in a review of the Ph. Serb. II, points out that tinctures of potent drugs are directed to be made by percolation and are uni-

formly of 10 per cent strength.—Pharm. Post, Wien, 1909, v. 42, p. 1030.

Vöndrasek, J., presents a table showing the specific gravity and extract content of the tinctures official in the Ph. Hung., III, and Ph. Austr., VIII.—Pharm. Post., Wien, 1909, v. 42, p. 1001.

The corrections or changes of the specific weights for the official tinctures of the Ph. Ndl. IV are reprinted.—Pharm. Weekblad, 1909, v. 46, pp. 986–987.

Wooyenaka, Keizo, points out that in the Ph. Japon III tinctures of potent drugs were made to a strength of 10 per cent, otherwise 20 per cent, in accordance with the recommendations of the International Conference for the unification of formulas.—Am. Druggist, New York, v. 54, p. 261.

Lindström, Erik, discusses the tinctures of the Ph. Svec. IX and comments on the change in the strength of the alcohol used as menstruum.—Svensk. farm. Tidskr., 1909, v. 13, pp. 8–9. See also comments by C. H. Svensson. *Ibid.*, p. 32.

An editorial note points out that in the Ph. Svec., all of the tinctures included in the protocol of the Brussels Conference for the unification of the formulæ for potent medicaments are required to be made by percolation. Specific gravities are given for all tinctures.—National Druggist, 1909, v. 39, p. 7.

Oldberg, Oscar, points out that nearly all pharmacopœias have always ordered their tinctures made by maceration and still continue to do so. He thinks that any plant tincture of 10 per cent strength can be far more conveniently prepared by maceration than by percolation and just as effectively.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 429.

Dieterich and Mix in a discussion on the valuation of galenical preparations enumerate the determinable physical characteristics of the Ph. Germ. and some unofficial tinctures.—Pharm. Zentralh., 1909, v. 50, pp. 731–733.

Déjean, E., presents a comparative study of the active principle in certain alcoholatures and tinctures. He gives the practical yields for a number of tinctures of the Ph. Fr. V.—J. d. pharm. et d. chim., Par., 1909, v. 29, pp. 274–283.

Schnabel reports a number of observations made to determine the relative extract content of tinctures made with strong or more dilute alcohol, also of tinctures made by maceration and percolation. He concludes that the present Ph. Germ. dilute alcohol gives satisfactory results, and that percolation in his hands yields much better results than maceration; he therefore recommends that percolation be embodied in the new Ph. Germ.—Apoth. Ztg., Berl., 1909, v. 24, p. 975.

Lesueur, M., presents a paper on the influence of the method of preparation on the composition and stability of alcoholatures and tinctures; sterilization by boiling alcohol; the author working with cherry laurel leaves.—*J. d. pharm. et d. chim., Par.*, 1909, v. 30, pp. 49–59.

Cook, E. Fullerton, presents a comprehensive report on the behavior of U. S. P. tinctures when made from selected drugs by the official processes and stored under conditions of light and temperature most common to the average pharmacy.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 1000–1004.

An editorial comments on the possibility of developing a line of nonalcoholic tinctures, and presents a typical formula for a menstruum consisting of acetic acid, glycerin, and water.—*Pacific Pharmacist*, 1909–10, v. 3, p. 37.

Carette, H., discusses the detection of methyl alcohol in medicinal tinctures.—*J. d. pharm. et d. chim., Par.*, 1909, v. 29, pp. 481–484.

Gane and Webster discuss the determination of alcohol in simple tinctures and fluid extracts.—*Merck's Rep.*, 1909, v. 18, p. 196. Also *Drug Topics*, New York, 1909, v. 24, p. 116.

#### TINCTURÆ N. F.

##### TINCTURA AMARA N. F.

Posey, H. G., asserts that if the origin and source of bitter tincture is to be quoted it should be corrected to comply with that source. He thinks the note of reference should be omitted and the unripe fruit of *citrus vulgaris* replaced by the bitter orange peel U. S. P. which is easily obtainable, the reverse being true of the fresh fruit.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 995.

Diehl, C. L., reports from the committee on N. F. recommending the modification or deletion of the formula for bitter tincture. The last sentence of the note should be deleted.—*Ibid.*, p. 1090.

##### TINCTURA ANTACRIDA N. F.

Diehl, C. L., reports from the committee on N. F. recommending the deletion of antacid tincture.—*Ibid.*, p. 1090.

##### TINCTURA ANTIPERIODICA N. F.

Posey, H. C., objects to the method of making Warburg's tincture and thinks there is no good reason why we should digest this preparation on a water bath for 12 hours. Either the process of percolation or long-time maceration should be resorted to.—*Ibid.*, p. 995.

McElhenie, Thos. D., recommends the use of quinine hydrochloride instead of sulphate in making Warburg's tincture.—*Ibid.*, p. 971.

## TINCTURA AROMATICA N. F.

Posey, H. G., thinks the note of reference should be omitted from aromatic tincture or the formula should be revised.—*Ibid.*, p. 995.

Diehl, C. L., reports from the committee on N. F. recommending the modification or deletion of aromatic tincture. The note should also be dropped.—*Ibid.*, p. 1090.

## TINCTURA BRYONIE N. F.

Curryer, W. F., asserts that *Bryonia alba* is a remedy that stands among the polycrests and enjoys a reputation second to none with the modern Eclectic in the treatment of diseases of the serous membranes.—*J. Therap. & Diet.*, 1909–10, v. 4, p. 397.

Abbott, Solon, asserts that bryonia is indicated in cases of rheumatism with stitching pains, tearing pain, worse from the slightest motion. Great thirst, or dry mouth without thirst, fever and sour sweat, stools hard and dry, as if burnt.—*Ibid.*, 1908–9, v. 3, p. 204.

Howes, Pitts Edwin, asserts that the pains that indicate the use of bryonia are sharp and of a cutting character; the pain is generally intensified by motion and by joints which are stiff and swollen.—*Ibid.*, p. 216.

Boldt, H. J., commends homœopathic mother tincture of bryonia in 5 or 6 drop doses at six-hour intervals for the irritability of the bladder, frequent in connection with pelvic lesions, and the associated painful micturition.—*N. York M. J.*, 1909, v. 89, p. 371.

## TINCTURA CRESOLI SAPONATA N. F.

Posey, H. G., thinks that saponated tincture of cresol is so clearly allied to the official *Liquor Cresolis Comp.* that it would seem unnecessary.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 995.

Diehl, C. L., reports from the committee on N. F. the recommendation to change directions. Another subcommittee recommends deletion.—*Ibid.*, p. 1090.

## TINCTURA CROCI N. F.

The Catalogue of Definitions, adopted by the International Congress for the Suppression of Adulterations (Geneva, 1908), states that saffron (*Crocus sativa*) consists of the reddish yellow filaments coming from the dried stigmata of the flower accompanied or not by the yellow extremities of the style.—*Bull. sc. pharmacol., Par.*, 1909, v. 16, p. 235.

Schamelhout, A., states that saffron dried at 100° should lose not more than 15 per cent of water. (Ph. Belg. III, 14 per cent.) The ash content of dried saffron is 7 per cent maximum for the entire

saffron, and may attain 7.5 per cent for the powdered. The Ph. Belg. III tolerates 6.5 per cent in saffron not dried.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 338.

Umney, J. C., asserts that the limit of moisture is unnecessarily high, that of the Ph. Brit. being 12.5, an ample margin. The Ph. Germ. limit is 12 per cent.—Chem. & Drug, 1909, v. 75, p. 580.

A committee of the Syndicat général de la Droguerie française states that it is impossible to obtain the Codex reaction with benzin.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 235.

Rabet, P., presents certain notes on the analysis of saffron.—*Ibid.*, p. 401.

Rusby, H. H., thinks that the descriptions and standards of this article, which should be admitted, require careful consideration.—Midl. Drug., 1909, v. 43, p. 689. Also Pharm. Era, 1909, v. 42, p. 634.

Dohme and Engelhardt assert that crocus is a drug that is very often adulterated. Ash and coloring power should be determined and the drug should be again admitted to the U. S. P.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 886.

Collin, Eug., discusses the adulteration of saffron, and presents several illustrations showing the structural elements found in powdered saffron and the elements of carthamus flowers.—Ann. d. Fal-sif., 1909, v. 2, p. 378.

#### TINCTURA FERRI CHLORIDI ÆTHEREA N. F.

Posey, H. G., asserts that the "practically identical" note should be omitted from the ethereal tincture of ferric chloride, as this preparation is weaker than that produced by the corresponding Ph. Germ. formula. The name is spelled wrong. It should be "Bestuscheff's."—Proc. Am. Pharm. Ass., 1909, v. 57, p. 995.

Diehl, C. L., reports from the committee on N. F. recommending the modification or deletion of the formula for ethereal tincture of ferric chloride.—*Ibid.*, p. 1090.

#### TINCTURA FERRI CITRO-CHLORIDI N. F.

Ruddiman, E. A., presents notes on tincture of iron citrochloride N. F., and makes a number of suggestions regarding its possible use.—Am. Druggist, N. Y., 1909, v. 55, p. 366. Also Proc. Tennessee Pharm. Ass., 1909, p. 50.

Dunn, John A., asserts that his experience with tincture of iron citrochloride N. F. has been that when elixir of iron, quinine, and strychnine is prepared by the use of tincture of iron citrochloride N. F., crystallization almost invariably takes place. If, however, the 425 gm. of sodium citrate in the N. F. formula is replaced by 390





gm. of potassium citrate, the trouble with the elixir is overcome.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 959.

Diehl, C. L., reports from the committee on N. F. recommending the suggestion of E. H. Squibb (Bull., 1908, p. 280) to substitute 390 gm. of potassium citrate for 425 gm. of sodium citrate. This removes the "common complaint of crystallization" in making elix. iron, quinine, and strychnine, which was overcome by the use of the potassium salt in this structure.—*Ibid.*, p. 1091.

#### TINCTURA FERRI POMATA N. F.

Posey, H. G., points out that Tinctura Ferri Pomata is not a tincture, but an aqueous solution, and should not be defined as such even though it is official in the Ph. Germ. as a tincture. It is not practically identical with the "tincture" of that authority, for the reason that it has 10 per cent of additional alcohol. The note should be dropped.—*Ibid.*, p. 996.

Diehl, C. L., reports from the committee on N. F. recommending the modification or deletion of the formula for tincture of ferrated extract of apples.—*Ibid.*, p. 1091.

#### TINCTURA IGNATIE N. F.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 34) report on one consignment of ignatia yielding 2.14 per cent total alkaloid, of which 0.82 per cent was brucine.

#### TINCTURA IODI DECOLORATA N. F.

Hallberg, C. S. N., thinks that the title of this preparation should be changed to "Linimentum Iodi Decoloratum."—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1091.

Beringer, George M., expresses the belief that the title should be retained, as it is the one by which the preparation is called for.—*Ibid.*, p. 1091.

Diehl, C. L., reports from the committee on N. F. recommending a change in title to "Linimentum Iodi Decoloratum."—*Ibid.*, p. 1091.

#### TINCTURA KINO COMPOSITA N. F.

Diehl, C. L., reports from the committee on N. F. recommending a change in title to "Tinctura Kino et Opii Composita"; compound tincture of kino and opium.—*Ibid.*, p. 1091.

#### TINCTURA PECTORALIS N. F.

Posey, H. G., asserts that Tinctura Pectoralis is another example of therapeutic titles and should be changed.—*Ibid.*, p. 996.

## TINCTURA PERSIONIS N. F.

Posey, H. G., asserts that the formula for tincture of cudbear needs revision badly, inasmuch as percolation does not yield a preparation representing the maximum tinctorial power of the drug and is absolutely too tedious. He presents a formula suggested by Hankey (minutes Ohio Branch, A. Ph. A., Dec. 20, 1907).—*Ibid.*, p. 996.

Cook, E. Fullerton, thinks that tincture of cudbear should be prepared by maceration.—*Ibid.*, p. 962.

The committee on drug market report cudbear with moisture 3 to 10.5 per cent; ash, 4.4 to 66.8 per cent; chlorine, as NaCl, trace to 60.7 per cent; arata dye test, all O. K.; filtrate from Lead S. S., colorless to decided pink; dying on cotton alum mordant, colorless to slightest color.—*Ibid.*, p. 732.

Kline, C. M., reports a sample of cudbear with 29.7 per cent of ash. The usual amount is from 5 to 12 per cent.—Proc. N. W. D. A., 1909, p. 128. Also Proc. Pennsylvania Pharm. Ass., 1909, p. 179.

Dohme and Engelhardt report that the several samples of cudbear submitted to them varied considerably in coloring power.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 715.

## TINCTURA PERSIONIS COMPOSITA N. F.

Posey, H. G., thinks that the drug in compound tincture of cudbear should be replaced by an equivalent amount of tincture. This formula prescribes caramel. He remarks that just what is meant by caramel would be interesting, in view of the fact that the book provides no standard of strength for that substance, and also that it is an article of commerce and is extremely variable in so far as its coloring properties are concerned.—*Ibid.*, p. 996.

## TINCTURA PIMPINELLÆ N. F.

Diehl, C. L., reports from the committee on N. F. recommending the modification or deletion of tincture of pimpinella.—*Ibid.*, p. 1091.

## TINCTURA RHEI ET GENTIANÆ N. F.

Diehl, C. L., reports from the committee on N. F. recommending dismissal of the title "Tinctura Rhei et Gentianæ," giving this title to the first formula. The second formula should be given the title "Tinctura Rhei et Gentianæ alt. formula."—*Ibid.*, p. 1091.

## TINCTURA SAPONIS VIRIDIS COMPOSITA N. F.

Diehl, C. L., reports from the committee on N. F. recommending a change in title to "Linimentum Olei Cadini Saponatum, saponated liniment of cade." Also the addition of compound tincture of soap (former edition). A change in directions is also recommended.—*Ibid.*, p. 1092.

**TRAGACANTHA.**

Peters, W., gives the moisture content of tragacanth as 13.7 to 14.98 per cent, the ash content of the air-dry drug as 2.42 to 2.57 per cent; the ash content of the dried drug as 2.85 to 3.85 per cent; and the color of the resulting ash as almost white.—Apoth. Ztg., Berl., 1909, v. 24, p. 538. Also Schweiz. Wchnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, p. 663.

Runne, H., discusses the examination of tragacanth and the detection of adulteration, either in the form of dried starch paste or admixtures of acacia with other gums.—Apoth. Ztg., Berl., 1909, v. 24, pp. 389-391.

Scoville, W. L., reports on spurious gum tragacanth, and presents a tabular review of the more important tests for differentiating between tragacanth and the so-called India gum.—Drug. Circ., N. Y., 1909, v. 53, pp. 116-117.

An editorial (Pharm. J., Lond., 1909, v. 29 (83), p. 388) discusses Persian tragacanth and the reasons for its variation in quality and quantity.

Francis, J. M., reports that recently a spurious tragacanth has been offered, and while this may serve a good purpose in certain industrial lines, he believes that it has also been sold to pharmacists, particularly in a powdered state, with some of the genuine article. A mixture of this kind is very hard to detect by any of the tests available up to this time.—Proc. Pennsylvania Pharm. Ass., 1909, p. 127.

Gane and Webster believe that the oxydase test suggested by E. Paget a year or two ago is fairly satisfactory for detecting additions of over 5 per cent of acacia to tragacanth, but it is useless for detecting smaller quantities.—Drug. Topics, New York, 1909, v. 24, p. 37.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 56) report a cheap powdered gum tragacanth containing a large portion of gum acacia. A sample of "Indian tragacanth" possessed the characters and responded to the tests given by Scoville, and, like the gums quoted by J. H. Maiden, has a pronounced acetous odor.

**TRITICUM.**

Kebler, L. F., reports that a consignment of "dog grass" was found to be wholly spurious. It was identified by an expert in the Bureau of Plant Industry as "Bermuda grass."—Am. J. Pharm., Phila., 1909, v. 81, p. 75.

The Belgian inspectors of pharmacies report triticum rhizomes sometimes damaged, brown, or moldy.—J. d. pharm. d'Anvers, 1909, v. 65, p. 550.

French, J. M., asserts that triticum has a positive value in medicine and is worthy of more careful study and more extended use than

it has received. He has found that infusions of this drug increase the flow of urine, lessen the specific gravity, clear up cloudy urine, and relieve undue acidity.—*J. Therap. & Dietet.*, Boston, 1908-9, v. 3, pp. 109-111.

#### TROCHISCI

Beringer and Kresge present a paper on troches that are official and some that should be, with a number of formulas.—*Proc. New Jersey Pharm. Ass.*, 1909, pp. 80-87. Also *Am. Druggist*, N. Y., 1909, v. 54, p. 361-362.

#### TUBERCULIN.

Hoger, A., reviews the history of tuberculin and comments on some of the many tuberculin preparations now on the market.—*Pharm. Zentralh.*, 1909, v. 50, pp. 949-953.

Ruppel, Wilhelm G., reviews the production of tuberculin and other specific preparations for the diagnosis and treatment of tuberculosis; he also presents a bibliography of the subject.—*Ber. d. pharm. Gesellsch.*, Berl., 1909, v. 19, pp. 58-88.

Gamble, F. W., outlines the history of tuberculin and describes the several tuberculins now on the market.—*Pharm. J.*, Lond., 1909, v. 28 (82), pp. 146-147.

Falconer, A., discusses the use of various forms of tuberculin and its use as a diagnostic and a curative agent.—*Ibid.*, p. 432.

Baldwin, Edward R., reports his conclusions from 1,087 conjunctival tuberculin tests by a uniform method. These conclusions are not altogether favorable to the method.—*J. Am. M. Ass.*, 1909, v. 52, pp. 603-605.

Sill, E. Mather, discusses the value and reliability of Calmette's ophthalmic reaction to tuberculin for the diagnosis of tuberculosis and differentiation of tuberculous lesions from other diseases in infants and young children.—*N. York M. J.*, 1909, v. 89, p. 377.

v. Pirquet, Clemens F., reports results obtained in quantitative experiments with the cutaneous tuberculin reaction.—*J. Pharm. & Exper. Therap.*, 1909-10, v. 1, pp. 151-174.

Rayevsky, Charles, reports two cases suggestive of specific general and focal reactions after von Pirquet's cutaneous test.—*J. Am. M. Ass.*, 1909, v. 52, p. 2102.

Trimble, William B., discusses the diagnostic value of the intracutaneous tuberculin reaction in cutaneous tuberculosis. He thinks it less harmful and quite as satisfactory as the Calmette, and even more conclusive than the von Pirquet method.—*N. York M. J.*, 1909, v. 89, p. 1034.

Gonzalez, C. Ezequiel, discusses the comparative diagnostic value of the ophthalmic and cutaneous reactions and of the injection of tuberculin.—*Rev. méd. Chile*, 1909, v. 37, pp. 132-169.

Kinghorn and Twichell present a clinical study of the effect of tuberculin treatment on the serum agglutination of tubercle bacilli. They conclude that the agglutination test has not proved itself of value to control tuberculin administration when given to cases with pulmonary tuberculosis. In other words, the clinical method is at present the most reliable.—*Am. J. M. Sc.*, 1909, v. 137, pp. 404-414.

The editor of the "Therapeutics" column (*J. Am. M. Ass.*, 1909, v. 53, p. 301) discusses tuberculin reactions in diagnosis of tuberculosis.

Mantoux, Charles, presents a note on the use of tuberculin in the treatment of tuberculosis.—*Compt. rend. Acad. d. sc., Par.*, 1909, v. 148, pp. 996-998.

Rappin discusses the vaccination of cattle against tuberculosis by a method which he thinks may be applicable as well to man.—*J. d. pharm. et d. chim., Par.*, 1909, v. 29, p. 509.

Anderson, John F., reports an experimental study on the presence of tubercle bacilli in the circulating blood in clinical and experimental tuberculosis.—*Bull. Hyg. Lab., U. S. P. H. & M.-H. S.*, 1909, No. 57, p. 39.

Hewat and Sutherland make a contribution on the determination of the tubercle bacillus in the blood of persons suffering from phthisis.—*Brit. M. J.*, 1909, v. 2, p. 1119.

Rosenau, M. J., reports on the viability of the tubercle bacillus.—*Bull. Hyg. Lab., U. S. P. H. & M.-H. S.*, 1909, No. 57, p. 39.

E. Merck's Annual Report (1909, Darmstadt, 1910, v. 23, pp. 77-84) reviews some of the recent literature relating to tuberculin preparations.

Additional references on the production, pharmacology, and use of tuberculin will be found in *Jahresh. ü. Tier-Chem., Index Medicus*, and *J. Am. M. Ass.*

#### ULMUS.

Henkel, Alice, presents a description with illustrations of *Ulmus pubescens* Walt., gives the pharmacopœial name, its synonym and common names, discusses its habitat and range, describes the tree and the bark, and comments on its collection, prices, and uses.—*Bull. Bur. Plant. Ind., U. S. Dept. Agric.*, 1909, No. 139, pp. 20-21.

Baird, J. W., quotes P. P. Mitchel's report on 10 samples of powdered elm, 2 of which were adulterated, 1 evidently with corn starch and one with wheat starch.—*Proc. Massachusetts Pharm. Ass.*, 1909, p. 122.

Hommell, P. E., presents a formula for glyceritum ulmi which he thinks should be introduced in the next edition of the U. S. P. as a vehicle for the administration of potent medicaments.—*Western Druggist*, Chicago, 1909, v. 31, pp. 493-494.

# UNGUENTA.

Eberle, H. T., asserts that the first requisite for making a good ointment is that the base, whether lard, simple ointment, wool-fat, or petroleum, be of good quality and free from all taint of rancidity or foreign odor.—*Southern Pharm. J.*, 1908-9, v. 1, p. 27.

White, George H., presents a paper on ointments and cerates and discusses more particularly the base. He thinks wool-fat undesirable and as prone to become rancid as lard. He prefers the ointment base of the U. S. P. VII, and suggests as an alternative olive oil 2 parts and wax 1 part.—*Proc. New Jersey Pharm. Ass.*, 1909, pp. 78-79.

Blatz, F., discusses the mixtures of soap and petrolatum that are being recommended as ointment bases because of their ability to take up and hold appreciable quantities of water.—*Apoth. Ztg., Berl.*, 1909, v. 24, pp. 523-524.

Dunn, John A., thinks that anhydrous wool-fat is of great service in the preparation of ointments made with chemicals which dry hard and gritty. It affords an opportunity of using freshly precipitated magmas drained as thoroughly as possible.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 949.

Berger, Fr., discusses the ointment of the Ph. Helv. IV, and points out the changes that are embodied in the present official formulas.—*Schweiz. Wchnschr. f. Chem. u. Phar., Zürich.*, 1909, v. 47, pp. 45-47.

Dieterich and Mix in a discussion on the valuation of galenical preparations enumerate the determinable physical characteristics of the official Ph. Germ. IV, and some unofficial, ointments.—*Pharm. Zentralh.*, 1909, v. 50, pp. 733-734.

Thornton, W. Lawson, describes and illustrates a syringe for applying ointments to dressings and wounds.—*J. Am. M. Ass.*, 1909, v. 52, p. 1573.

"s" describes and illustrates an apparatus designed for filling and sealing ointment tubes.—*Pharm. Zentralh.*, 1909, v. 50, pp. 981-982.

# UNGUENTUM.

Mittelbach, William, thinks the formula for ointment in the U. S. P. of 1880 and 1890 is better than the one now official. White wax makes simple ointment too stiff.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 817.

Caldwell, Paul, points out that lard, being a constituent of simple ointment, renders it mealy and lacking in smoothness. He considers lard unsuited for ointments. Simple ointment may be improved by substituting a mixture of paraffin and petrolatum of the same proportion as that prescribed of wax and lard.—*Bull. Pharm.* 1909, v. 23, p. 116.

# UNGUENTUM ACIDI BORICI.

Schamelhout, A., notes that the boric acid pomade of the Ph. Fr. V is the boric vaseline of the [Belgian] formulary. The boric ointment of the Ph. Belg. III has the simple ointment [lanoline and vaseline] as an excipient.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 72.

The examination of drug samples in 1907 shows that 31 samples of boric acid ointment examined, 2 were found adulterated or not up to standard.—Pharm. J., Lond., 1909, v. 28 (82), p. 182.

# UNGUENTUM AQUA ROSÆ.

Caldwell, Paul, points out that cold cream can be made finer if the quantity of spermaceti be reduced to 100 gm. and the white wax to 145 gm. A more permanent ointment is obtained by replacing the oil of almond with liquid petrolatum.—Bull. Pharm., 1909, v. 23, p. 116.

Eliel, Leo., objects to the use of mineral oil in the making of cold cream. He thinks that ointment of rose water is especially valuable because of its ready absorbability and that this property will be entirely lost by substitution of mineral oil.—Southern Pharm. J., 1908-9, v. 1, p. 123.

# UNGUENTUM BELLADONNÆ.

Schamelhout, A., states that the Ph. Fr. V belladonna ointment is 3.30, that of the Ph. Belg. III is 10 per cent; in the former the excipient is glycerin and benzoinated lard; in the latter water and simple ointment [lanoline and vaseline].—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 73.

# UNGUENTUM CALAMINÆ N. F.

Posey, H. G., thinks that a standard of purity for calamine should form part of the book, for the reason that it is a very hard matter to obtain a good quality of that substance.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 996.

An editorial (Drug Topics, New York, 1909, v. 24, p. 326) asserts that the old *Lapis Calaminaris* is no longer obtainable, the few known deposits being practically worked out. An imitation product consisting mainly of barium sulphate colored with iron is being sold under the same name. Inasmuch as the virtues that the original mineral may possess undoubtedly lie in the zinc base, the formula given in the B. P. Codex for Calamina factitia is suggested for adoption.

Mann, E. W., asserts that 17 years ago Dott found most of the calamine of commerce to be factitious and to contain much barium

sulphate. He has determined the quality of the article supplied to-day and found many samples which were absolutely destitute of zinc.—Pharm. J., Lond., 1909, v. 28 (82), p. 366.

Kline, C. M., reports that a lot of calamine offered at the port of Philadelphia was composed of crude barium sulphate colored with aniline dye.—Proc. N. W. D. A., 1909, p. 136.

Evans Sons Lescher & Webb (Analytical Notes, 1909, p. 17) report six parts of arsenic per million as the maximum amount found in their product.

Southall Bros. & Barclay (Rep. 1908-9, Birmingham, 1910, pp. 28-29) procured samples of calamine from various sources and subjected them to a fairly exhaustive analysis; the zinc as oxide was found to vary from 0 to 39.23 per cent and the portion insoluble in hydrochloric acid varied from 0.39 to 92.58 per cent.

#### UNGUENTUM CAMPHORE N. F.

Posey, H. G., asserts that camphor ointment N. F. should be dropped on account of its similarity to the pharmacopœial product.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 997.

#### UNGUENTUM DIACHYLON.

Mittelbach, William, asserts that the formula for diachylon ointment is good, but the preparation is now rarely used.—*Ibid.*, p. 817.

Caldwell, Paul, asserts that the quantities of diachylon ointment are not so well balanced as to attain sufficient firmness.—Bull. Pharm., 1909, v. 23, p. 116.

Hay, Edmund, reports three cases in which diachylon was used as an abortifacient; two patients recovered, the third was still under treatment.—Brit. M. J., 1909, v. 1, p. 214. See also *Ibid.*, p. 277.

Heaney, F. Strong, reports a fatal case in a woman of 25.—*Ibid.*, p. 1062.

#### UNGUENTUM GALLE.

Caldwell, Paul, asserts that nutgall ointment is useless, if tannic acid ointment is to be retained. If the physician wants an ointment containing tannic acid, give it to him and don't offer this "just as good" ointment of nutgalls.—Bull. Pharm., 1909, v. 23, p. 116.

#### UNGUENTUM HYDRARGYRI.

Capps, Pratt, McCrae, and Halsey say that much confusion is caused by unguentum hydrargyri and unguentum hydrargyri dilutum; one or the other should be dropped from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.



Schamelhout, A., asserts that the medicament designated in the Ph. Fr. V, under the names mercurial pomade of equal parts, Neapolitain ointment, and pomatum hydrargyricum gallicum, is a derogation to the decisions of the International Congress for the unification of the formulas for heroic medicaments.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 73.

Börner, B., discusses the requirements to be made of a satisfactory mercurial ointment and asserts that a freshly prepared ointment is to be preferred. He outlines a method for the extemporaneous making of this preparation.—Apoth. Ztg., Berl., 1909, v. 24, p. 887.

Mittelbach, William, asserts that the formula for mercurial ointment is not satisfactory. He presents a formula which he thinks superior to the one now official.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 817.

Dunn, John A., points out that while the addition of oleate of mercury may be a necessity in extinguishing the mercury on a small scale, on a manufacturing scale it is neither necessary nor desirable, as it gives a greenish-blue color to the ointment when exposed to the air.—*Ibid.*, p. 950.

Johnson, W. C., outlines an improved process for the assay of mercurial ointment, which depends on the amalgamation of mercury and copper in a mixture containing an aqueous solution of potassium cyanide and the mercurial ointment dissolved in petroleum benzin.—Pacific Pharmacist, 1909-10, v. 3, pp. 38-39.

Lythgoe, Herman C., reports examining 96 samples of mercurial ointment; 46 of these samples fell below the pharmacopœial requirements, many of them being the dilute mercurial ointment, which contains one-third mercury. Twenty-eight samples contained less than one-third mercury, the percentage of mercury varying from 9 to 28 per cent.—Rep. Massachusetts Bd. Health (1909), 1910, p. 477.

The Belgian inspectors of pharmacies report that the preparation of mercurial ointment leaves much to be desired; it is made with rancid lard, or too soft, or else vaseline is incorporated with it.—J. d. pharm. d'Anvers, 1909, v. 65, p. 625. See also Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 267.

Hinton, G. Allison, has secured fairly satisfactory results with mercurial ointment in the treatment of syphilis. Echinacea, phyto-lacca, and the vegetable specifics generally have failed him in at least 95 per cent of the cases treated.—Nat. Eclect. Med. Ass. Quart., 1909-10, v. 1, p. 114.

#### UNGUENTUM HYDRARGYRI DILUTUM.

Mittelbach, William, thinks the formula for blue ointment very good.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 817.

Caldwell, Paul, suggests that the advantages of having two ointments of mercury are not as numerous as the mosquitoes on Staten Island.—Bull. Pharm., 1909, v. 23, p. 116.

#### UNGUENTUM HYDRARGYRI AMMONIATI.

Mittelbach, William, thinks the formula for ointment of ammoniated mercury very good.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 817.

Dunn, John A., points out that it would be possible to prepare this from the freshly precipitated chemical and leave 13 gm. of the chemical in the magma by using 28 gm. of anhydrous wool-fat instead of 40 gm. hydrous wool-fat.—*Ibid.*, p. 949.

Caldwell, Paul, asserts that ammoniated mercury ointment is the acknowledged "Jonah" among ointments. He suggests using bichloride of mercury instead of the ammonium salt. This would necessitate making the base of anhydrous lanolin alone.—Bull. Pharm., 1909, v. 23, p. 116.

#### UNGUENTUM HYDRARGYRI NITRATIS.

Mittelbach, William, asserts that the formula for ointment of mercuric nitrate is very good.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 817.

Caldwell, Paul, points out that ointment of mercuric nitrate is still an unsatisfactory formula, although it may represent an improvement over the old one. He suggests that the mercury salt be dissolved in water and added to a base consisting of anhydrous lanolin.—Bull. Pharm., 1909, v. 23, p. 116.

Schamelhout, A., states that the French citrine ointment contains less mercury (4:92) than the Belgium (5 per cent); in the former this quantity of mercury is dissolved in 8 gm. of ordinary nitric acid ( $D.=1.383$ ), in the latter in 7 gm. of pure nitric acid ( $D.=1.39$ ).—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 73.

The Belgian inspectors of pharmacies report citrine ointment often spoiled; blackish.—J. d. pharm. d'Anvers, 1909, v. 65, p. 625. See also Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 267.

#### UNGUENTUM HYDRARGYRI OXIDI FLAVI.

Mittelbach, William, asserts that the formula for ointment of yellow mercuric oxide is very satisfactory.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 817.

Gartside, W., asserts that ointment of yellow oxide of mercury is far better when prepared with freshly precipitated yellow oxide.—Pharm. J. Lond., 1909, v. 28 (82), p. 268.

Berger, Fr., calls attention to the directions for making ointment of yellow mercuric oxide, and points out that this ointment is intended to be diluted for use in the eye.—Schweiz. Wchnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, p. 46.

Schamelhout, A., notes that the ointments of the yellow and red oxide of mercury are 5 per cent in France and 2 per cent in Belgium.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 73.

Caldwell, Paul, asserts that ointment of yellow mercuric oxide should be dropped, not for lack of popularity but because its strength is about double that usually prescribed. No physician wants the stock ointment dispensed. Then, too, the wool-fat is not as good a preservative as petrolatum alone. If it be retained, he asks why not make it the strength of the usual prescription—a grain to a drachm—and direct that it be made fresh when wanted.—Bull. Pharm., 1909, v. 23, p. 116.

Harbert, J. P., states that prolonged exposure to light alters the ointment of yellow mercury and this should be avoided; he recommends dispensing it in collapsible tubes. The strength of the ointment should be from 5 to 10 grains of the powder to the ounce of vaseline. It is more properly used in chronic eye affections.—Eclectic M. J., Cincin., 1909, v. 69, p. 529.

#### UNGUENTUM HYDRARGYRI OXIDI RUBRI.

Mittelbach, William, asserts that the formula for ointment of red mercuric oxide is very satisfactory, if the red oxide of mercury is pulverized very fine before making the ointment. In other words, if the red oxide is rubbed into the yellow oxide as a preliminary step the ointment will be satisfactory.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 817.

#### UNGUENTUM IODI.

Lythgoe, Herman C., reports that four samples of iodine ointment were examined; three were found to be pure. The fourth sample was low in iodine. It was found from experiments made in the laboratory that iodine ointment will deteriorate very rapidly, and for this reason no further collections were made.—Rep. Massachusetts Bd. Health (1909), 1910, p. 477.

#### UNGUENTUM PHENOLIS.

Schamelhout, A., notes that phenol ointment of the Ph. Fr. V is 1 per cent. The phenolated vaseline [Belgian] formulary is 5 per cent and the phenol ointment of the Ph. Belg. is likewise 5 per cent, and has simple ointment [lanoline and vaseline] as an excipient.—Bull. Soc. roy. d. pharm. Brux., 1909, v. 53, p. 74.

UNGUENTUM PICIS LIQUIDA.

Schamelhout, A., notes that the French tar ointment is 10 per cent and employs lard as an excipient; the Belgian is 20 per cent, and the excipient simple ointment [lanoline and vaseline].—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 73.

UNGUENTUM RESORCINI COMPOSITUM N. F.

Bruder, Otto E., thinks the name "Unguentum Resorcini Compositum" should be changed to "Unguentum Resorcinolis Compositum," to correspond with the change in the name from resorcinum to resorcinol; a paragraph should also be inserted in connection with this ointment to the effect that "a slight unimportant change in the color of this ointment will occur in the course of time."—Proc. Am. Pharm. Ass., 1909, v. 57, p. 967.

Kauffmann, William D., presents a formula for compound resorcin ointment in which the hydrous wool-fat is replaced by anhydrous wool-fat.—Drug Circ., N. Y., 1909, v. 53, p. 590.

Weinstein, Abraham, thinks that compound resorcin ointment is very much improved by replacing the oil of cade with oil of birch tar, as the odor of the oil is very offensive and objectionable to the patient.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1131.

Hartz, J. D. Aug., presents a formula for unguentum resorcini comp., in which the resorcinol is directed to be dissolved in water to be incorporated with anhydrous wool-fat.—*Ibid.*, p. 969.

Posey, H. G., asserts that the directions in the formula for compound resorcin ointment are all wrong, and presents modifications.—*Ibid.*, p. 997.

Burge, J. O., presents a modified formula for compound resorcin ointment. He recommends making an ointment for stock purposes with paraffin, petrolatum, and oil of cade, and adding the remaining ingredients extemporaneously.—*Ibid.*, pp. 1160-1161.

Hilton, Samuel L., asserts that some changes are desirable in the manipulation of compound resorcin ointment. The trituration of resorcin, zinc sulphate, and bismuth subnitrate with the hydrous wool-fat should be made in a warmed mortar, before incorporating the paraffin and petrolatum; and after melting together they should be allowed to cool to about the same temperature of the mixture first prepared.—Pharm. Era, 1909, v. 41, p. 254.

Stage, F. M., thinks the difficulties frequently complained of in connection with the making of compound resorcin ointment might be readily overcome by melting the ointment by means of a gentle heat and stirring it until it cools.—Drug. Circ., N. Y., 1909, v. 53, p. 127.

Rodda, I. G., thinks that the trouble with the official process is that there is too much oil of cade to be added, and that the amount of water in the hydrous wool-fat prevents a thorough working up of the powders.—*Pacific Pharmacist*, 1909-10, v. 3, pp. 106-107.

Hargreaves, John, suggests the following directions for making compound resorcin ointment: Liquify the paraffin, petrolatum, and hydrous wool-fat, dissolve the resorcin in the liquid, then sift or stir in the zinc oxide and bismuth subnitrate, and lastly the oil of cade. Finish by rubbing out on a glass or marble slab with a spatula.—*Canad. Pharm. J.*, Toronto, 1909-10, v. 43, p. 26.

Muhlhan, Otto E., suggests the following modification in the method of preparing compound resorcin ointment: Melt the resorcin in a large test tube or beaker and add it to the melted wool-fat, stir well and heat a few minutes. Triturate the zinc oxide and bismuth subnitrate with the melted petrolatum and paraffin. Then mix the two and lastly add the oil of cade and mix well.—*N. A. R. D. Notes*, v. 8, 1909, p. 348.

Caspari, Chas., jr., reports that compound resorcin ointment was satisfactorily made in accordance with the recent suggestion of a member of the Chicago branch, using white wax in place of paraffin and part anhydrous and part hydrous wool-fat, the resorcin being dissolved in a little water. A perfectly smooth ointment resulted, but one which gradually darkened.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 25.

Dunn, John A., points out that in preparing compound ointment of resorcin he has found it advantageous to use instead of 35 parts of hydrous wool-fat, 25 parts of anhydrous wool-fat, and 10 parts of distilled water, using the latter to dissolve the resorcin. He outlines his method of procedure and points out that the oil of cade should be specified light-colored.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 956.

Diehl, C. L., reports from the committee on N. F. recommending a formula which was presented by Dunn at the meeting of the American Pharmaceutical Association.—*Ibid.*, p. 1092.

#### UNGUENTUM SULPHURIS COMPOSITUM N. F.

Weinstein, Abraham, suggests adding a note to read: "Care must be taken in applying this ointment on the face, as the green soap which contains potash is a violent, deeply penetrating caustic, and liable to injure the face."—*Ibid.*, p. 1131.

Dunn, John A., suggests that for the compound ointment of sulphur N. F., 30 parts of lard be replaced by the same amount of anhydrous wool-fat. His experience has been that the use of anhydrous wool-fat prevents the separation of the water contained in the soft soap, and therefore makes a smooth and permanent ointment.—*Ibid.*, p. 957.

# UNGUENTUM ZINCI OXIDI.

Posey, H. G., has had but indifferent success with the U. S. P. formula for ointment of zinc, and recommends the following formula: Zinc oxide 200 gm., benzoinated lard 180 gm., white wax 180 gm., and oil of peach kernels 440 gm.—*Western Druggist*, Chicago, 1909, v. 31, p. 10.

Mittelbach, William, asserts that the formula for ointment of zinc oxide is very good.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 817.

Caldwell, Paul, points out that in zinc ointment the lard could be replaced by a mixture of paraffin 1 part, yellow wax 1 part, and white petrolatum 8 parts. This preparation needs a firmer base because the zinc is so heavy and the thermometer so arbitrary.—*Bull. Pharm.*, 1909, v. 23, p. 117.

Schamelhout, A., notes that zinc oxide ointment is 10 per cent in France; vaseline is employed as excipient, and in Belgium the simple ointment [lanoline and vaseline].—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 74.

Lythgoe, Hermann C., reports that, of 11 samples of zinc oxide ointment collected, 5 of which were deficient in zinc oxide, varying from 10 to 18 per cent.—*Rep. Massachusetts Bd. Health* (1909), 1910, p. 477.

The Fourteenth Annual Report of the Local Government Board for Scotland, reports 4 samples of zinc ointment examined, of which 1 was found to be adulterated.—*Chem. & Drug.*, Lond., 1909, v. 75, pp. 17-18.

# UNGUENTUM ZINCI STEARATIS.

Capps, Pratt, McCrae, and Halsey recommend the deletion of unguentum zinci stearatis from the U. S. P.—*J. Am. M. Ass.*, 1909, v. 53, p. 792.

Caldwell, Paul, reports that ointment of zinc stearate has failed to arouse sufficient enthusiasm to merit a glance and should be removed from our vision.—*Bull. Pharm.*, 1909, v. 23, p. 117.

Mittelbach, William, asserts that the use of the heat in the preparation of ointment of zinc stearate is not good. A good smooth ointment is readily made by simply mixing the ingredients, if care is taken in using good zinc stearate, in very fine powder.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 817.

# UNGUENTA EXTENSA N. F.

Diehl, C. L., reports from the committee on N. F. recommending a change in title to "unguextensa."—*Ibid.*, p. 1092.

## UVA URSI.

Rusby, H. H., asserts that two distinct varieties of *uva ursi* are imported, differing greatly in size, but nearly agreeing in other respects. The origin of these should be investigated.—Pharm. Era, 1909, v. 42, p. 635. Also, Midl. Drug., 1909, v. 43, p. 691.

## VACCINE.

Gathercoal, E. N., thinks that vaccine and antitetanic serum should be made official.—Bull. Am. Pharm. Ass., 1909, v. 4, p. 30.

Blaxall, F. R., presents the report on the operations of the Government lymph establishment, 1908–9, with tabulated statistics showing the results of the use of glycerinated calf lymph issued during the year ending March 31, 1909.—Rep. Local Govt. Bd. Suppl., Lond., 1909, pp. 250, ff.

Blaxall and Fremlin report on further results of storage of glycerinated calf lymph at temperatures below the freezing point, with a tabulated comparison of current lymph and cold storage lymph, together with a report on the advantages of cold storage of lymph in the Tropics.—*Ibid.*, pp. 455–459.

An unsigned note (Brit. M. J., 1909, v. 2, 1168) gives tabulated statistics with reference to vaccination and exemption in 1908.

Melvin, A. D., reports on the investigations made to determine the cause of an outbreak of foot and mouth diseases in Pennsylvania and in New York due to contaminated vaccine virus.—Ann. Rep. U. S. Dept. Agric. for 1909, 1910, p. 196.

See also J. Am. M. Ass. 1909, v. 52, pp. 1679–1680; and Oil, Paint, & Drug Rep., New York, 1909, v. 75, May 17, p. 28 F.

## VALERIANA.

Schneider, Albert, points out that valerian thrives exceedingly well in California, in fairly moist, somewhat sandy soil mixed with clay.—Pacific Pharmacist, 1909–10, v. 3, p. 193.

Peters, W., gives the moisture content of valerian as 7.35 per cent; the ash content of the air-dry drug as 28.54 per cent; the ash content of the dried drug as 30.80 per cent, and the color of the resulting ash as light reddish brown.—Apoth. Ztg., Berl., 1909, v. 24, p. 538.

The Belgian inspectors of pharmacies report valerian root as poorly cleaned, and containing much earth. Moreover, it is not rare to see a powder giving 25 to 30 per cent of ash.—J. d. pharm. d'Anvers, 1909, v. 65, p. 552.

Feldhaus, Julius, reports the specific gravity of 2 samples of fluid extract of valerian, U. S. P., as being 0.95 and 0.978, and the extract content 6 and 14 per cent, respectively. Both of the samples were slightly cloudy.—Pharm. Ztg., Berl., 1909, v. 54, p. 58.

Caldwell, Paul, thinks that fluid extract of valerian can be dropped for the reason that the tincture is used instead.—Bull. Pharm., 1909, v. 23, p. 115.

Cook, E. Fullerton, reports that the formula for tincture of valerian is very satisfactory. The ammoniated tincture of valerian precipitates slightly, the latter being almost black in color and clinging closely to the bottom of the bottle.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1004.

Barton, Wilfred M., asserts that the vaunted efficacy of valerian in hysteria is due solely to its odor, and recommends the use of a dignified psychotherapy and the disuse of the disgusting and superfluous valerian.—J. Am. M. Ass., 1909, v. 52, p. 1558.

### VANILLA.

An illustration showing vanilla flowers and fruit is reproduced as a frontispiece, and a second illustration showing several bundles of garden-grown vanilla is printed, facing p. 14 of 21st Ann. Rep. Missouri Bot. Gard., St. Louis, 1910.

An unsigned article states that the crop of vanilla of the Seychelles in 1908 amounted to only 24.75 tons as against 66.5 tons in the previous year. The decline is due to the weakening of the plants after the heavy yield of the previous year. The best of the Seychelles vanilla is stated to be sold in France, where the market for the finer kind is said to be better than in the United Kingdom.—Bull. Imp. Inst., 1909, v. 7, p. 395.

A news note points out that Arthur Garrels reports on the production of vanilla beans on the Island of Zanzibar.—Oil, Paint, and Drug Rep., New York, 1909, v. 76, p. 29.

Gehe & Co. (Handelsbericht, 1909, p. 71) discuss the production of vanilla on the Bourbon Islands, and present tables showing the amount produced and the ports to which the article was exported.

An abstract (American Perfumer) points out that the growing of the vanilla bean of commerce has attained considerable importance in Hawaii, where a number of small plantations have been producing for some years.—Brit. & Col. Drug., 1909, v. 56, p. 208.

Schimmel & Co. (Semi-Annual Report, October, 1909, p. 142) assert that the value of vanilla can not be judged entirely by its content of vanillin; the aromatics which accompany vanillin are also of great importance in determining the character of the aroma of vanilla. They report the results of their experiments with Tahiti vanilla, made in order to obtain further knowledge of the aromatic principles other than vanillin.

Winckel, Max, discusses the influence of the enzymes present in fresh vanilla on the development of vanillin and the other aromatic



principles present in the dry drug.—Pharm. Post, Wien, 1909, v. 42, p. 835. Also, Apoth. Ztg., Berl., 1909, v. 24, p. 723.

Tiffeneau, M., presents a paper on vanilla and vanillin.—Bull. sc. pharmacol., Par., 1909, v. 16, pp. 607-617.

Winton and Lott discuss the characterization of vanilla extract and its imitations.—Proc. Ass. Off. Agric. Chem., 1909, 26th Ann. Conv., pp. 108-109 (Bull. Bur. Chem. U. S. Dept. Agric., 1910, No. 132).

Chace, E. M., as associate referee, presents a report on flavoring extracts in which he discusses the determination of vanilla and the detection of coloring matter in vanilla extracts.—*Ibid.*, pp. 97-101.

Table showing reported results from the examination of extract of vanilla.

| Reporters.                  | Samples.  |           | References.   |
|-----------------------------|-----------|-----------|---|
|                             | Examined. | Rejected. |   |
| Hill, Edward C. ....        | 2         | 2         | Bull. Colorado Bd. Health, 1909, v. 9, No. 4, p. 2        |
| Street, John Phillips. .... | 65        | 24        | Rep. Connecticut Agric. Exper. Sta. (1909), 1910, p. 231. |
| Rose, R. E. ....            | 6         | 1         | Bull. Florida Agric. Dept., 1909, p. 109.                 |
| Bailey and Jackson. ....    | 33        | 5         | Bull. Kansas Bd. Health, 1909, v. 5, F. A., 20-25         |
| Lythgoe, Herman C. ....     | 29        | 2         | Rep. Massachusetts Bd. Health (1909), 1910 p. 469.        |
| Halverson, J. O. ....       | 15        | 4         | Rep. Food & Drug Com. Missouri, 1909, pp. 20-21.          |
| Fitz-Randolph, R. B. ....   | 30        | 3         | Rep. New Jersey Bd. Health (1909), 1910, p. 195.          |
| Dunlap, Renwick. ....       | 24        | 18        | Rep. Ohio Dairy & Food Com., 1909, p. 61.                 |
| Knight, Henry G. ....       | 11        | 5         | Rep. Dairy, Food & Oil Com., Wyoming, 1909 pp. 77-107.    |

Cook, E. Fullerton, reports that experiments seem to indicate that tincture of vanilla is entirely satisfactory, although reports have come from other parts of the country where much difficulty has been experienced from precipitation.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 1004.

Diehl, C. L., reports from the committee on N. F. a formula for elixir vanillini compositum.—*Ibid.*, p. 1062.

Hiley, R. F., reports a case of dermatitis in a Hindoo boy, age 18 years, due to vanilla.—Lancet, 1909, v. 176, p. 1433.

A news note asserts that vanillism is a new name for the physical troubles (usually of a cutaneous nature) to which workmen employed in brushing and packing vanilla are often subject. Twenty years ago Layet, of Bordeaux, attributed the ailment to the essential oils or "frost" of the vanilla, while Gaucher held that it was caused by formic aldehyde, used to clean the bunches (gousses), for the men, who work in india rubber gloves, never have their hands affected, although they often suffer in the face or neck; but it is now found

that artificial vanillin produces the same eruptions on some rather susceptible skins.—Chem. & Drug., Lond., 1909, v. 75, p. 846.

#### VANILLINUM.

Guyot and Gry discuss several novel syntheses of vanillin.—Proc. VIIth Internat. Congress App. Chem., Sec. IVa I, Organic Chemistry, 1909, London, 1910, pp. 330–332.

Bardet, G., discusses synthetic vanilla and vanillin.—Nouv. remèdes, 1909, v. 25, p. 433–441.

Delange, R., discusses the proposed tax on the consumption of vanillin, and presents a table showing the comparative value of the vanilla and vanillin from 1880 to 1909; also quotes the point of view expressed in editorials in different journals.—Monit. Scientif., 1909, v. 71, pp. 745–752.

Bougault, J., discusses the proposed impost on vanillin.—J. d. pharm. et d. chim., Par., 1909, v. 30, pp. 427–432.

Halverson, J. O., reports one sample of vanillin examined and rejected.—Rep. Food & Dairy Com. Missouri, 1909, p. 20.

Saalbach, Louis, commenting on the use of synthetic products in the making of flavoring extracts, reports that consumers frequently prefer synthetic "Extract of Vanilla" to that made from vanilla beans.—Proc. Pennsylvania Pharm. Ass., 1909, p. 186.

#### VERATRINA.

Mittelbach, William, asserts that olive oil is not necessary in the formula for oleate of veratrine.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 816.

He also expresses the belief that the formula for veratrine ointment is very good.—*Ibid.*, p. 817.

#### VERATRUM.

Rusby, H. H., points out that in the western United States there are half a dozen or more species of *Veratrum*, occurring in great abundance and capable of being very cheaply collected. He thinks they should all be collected and studied separately by both chemical and clinical means.—Midl. Drug., 1909, v. 43, p. 691. See also Pharm. Era, 1909, v. 42, p. 635.

Beringer, George M., points out that botanical authorities are agreed that the difference between American hellebore and the European or white hellebore, is more than varietal, and sufficient to hold both as distinct species.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 814.

Vanderkleed, C. E., reports seven assays of veratrum; lowest 1.576, highest 2.60, per cent alkaloids; all above standard.—Proc. Pennsylvania Pharm. Ass., 1909, p. 129.

Cook, E. Fullerton, reports that tincture of veratrum is entirely satisfactory pharmaceutically.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1004.

Todd, J. S., discusses the use of Norwood's tincture of veratrum viride, and calls attention to some of the reasons why it has fallen into disuse.—*Therap. Gaz.*, 1909, v. 33, pp. 78–80.

An editorial (*Ibid.*, p. 96) discusses the value of veratrum viride in the treatment of eclampsia, and points out that our knowledge of the underlying conditions of eclampsia and of the physiological action of veratrum viride make its use largely empirical.

Sharp, W. H., reports some personal experiences with veratrum viride, and expresses the belief that there is unmerited prejudice against and fear of this remedy.—*Ibid.*, p. 228.

An editorial (*J. Therap. & Diet.*, 1909–10, v. 4, pp. 6–7) asserts that veratrum viride has grown constantly in its usefulness and asserts that many kidney troubles will be benefited more quickly if a small dose of veratrum viride is added to the other medication.

Jones, Eli G., asserts that veratrum viride is one of the most valuable remedies in our materia medica if we only knew when and how to give it.—*Ibid.*, pp. 181–183.

#### VIBURNUM OPULUS.

Henkel, Alice, presents a description of *Viburnum opulus* L., gives the pharmacopœial name and common names, discusses its habitat and range, describes the shrub and bark and discusses its collection, prices, and uses.—*Bull. Bur. Plant Ind.*, U. S. Dept. Agric., 1909, No. 139, p. 48.

Diehl, C. L., reports from the committee on N. F. recommending a change in the second line of directions for making compound tincture of viburnum N. F., and the use of diluted alcohol instead of the menstruum given.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1092.

#### VIBURNUM PRUNIFOLIUM.

Henkel, Alice, presents an illustrated description of *Virburnum prunifolium* L., gives the pharmacopœial name and common names, discusses its habitat and range, describes the shrub and bark, and discusses its collection, prices, and uses, and calls attention to another species, *V. lentago* L.—*Bull. Bur. Plant Ind.*, U. S. Dept. Agric., 1909, No. 139, pp. 48–49.

McWalter, J. C., recommends Ext. viburni prunifolii Liq. for inclusion and standardization in the Ph. Brit.—*Chem. & Drug.*, Lond., 1909, v. 74, p. 20.

Felter, H. W., asserts that viburnum, better known as black haw, is a very popular remedy with Eclectic physicians. It is tonic and

antispasmodic, well sustaining the time-honored meaning of such therapeutic terms.—*Eclectic Rev.*, 1909, v. 12, p. 19.

#### VINA.

Dieterich and Mix, in a discussion of the valuation of galenical preparations, enumerate the determinable physical characteristics of the official Ph. Germ. IV, and some unofficial, wines.—*Pharm. Zentralh.*, 1909, v. 50, p. 734.

Berger, Fr., discusses the wines of the Ph. Helv. IV, and points out that, in accordance with the Brussels Conference Protocol, the wines of potent medicaments have been omitted.—*Schweiz. Wchnschr. f. Chem. u. Pharm.*, Zürich, 1909, v. 47, pp. 80–82.

Wilbert, M. I., discusses the gradual passing of wine as a pharmaceutical agent and presents a table showing the number of official medicinal wines and the wines of potent drugs included in several of the more important pharmacopœias.—*Proc. XII Internat. Cong. on Alcoholism*, 1909, pp. 289–293.

Scoville, Wilbur L., outlines a method for detannating wine by the addition of skimmed milk.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 998–1000. Also *Am. J. Pharm.*, Phila., 1909, v. 81, p. 447.

Cook, E. Fullerton, asserts that when Angelica wine is ordered it should have a definite alcoholic strength, preferably 18 to 20 per cent. Most of the trouble with the formula for essence of pepsin can be traced to the use of a wine deficient in alcohol.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 962.

Thiel, August, does not think it desirable to have the Pharmacopœia specifically designate the origin of wines, and points out that that quality determines the flavor more than does the source.—*Bull. Am. Pharm. Ass.*, 1909, v. 4, p. 155.

Wheeler, J. C., points out that pharmacists, by compounding the wines or spirits into medicines, bring themselves within the exemption provided by section 3246, R. S., but that to secure the benefit of this exemption the spirits or wines must be compounded with drugs sufficient in character and amount to have a therapeutic effect other than would be obtained by the use of spirits or wines un compounded and sufficient to render the compound unsuitable for use as a beverage.—*Ibid.*, p. 189.

#### VINUM.

The Catalogue of Definitions adopted by the International Congress for the Suppression of Adulteration (Geneva, 1908) states that under the general name of wine is embraced the product of the alcoholic fermentation, complete or incomplete, of fresh grapes, or of the juice of fresh grapes. The name should be a true indication

of its origin. Definitions of several varieties are added.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 239.

An editorial (Western Druggist, 1909, v. 31, pp. 462-463) calls attention to a recent report of the Department of Agriculture on factitious wines. The analyses of these wines disclosed that they are not made from the juice of grapes and were artificially colored to imitate true wines, and that they are therefore adulterated and misbranded. The editorial concludes that it is important for the vigilant Department of Agriculture to discover all cases of this or similar character at once, and it behooves druggists, therefore, to see that their supplies of wine come from reputable producers.

Thiel, August, discusses the nature of the domestic wines that should be used by druggists, and outlines the method of making wine in this country. He points out that the Pharmacopœia leaves the question open as to the particular type of dry white wine to be used, and enumerates a few of the native dry white wines which he believes will comply with the U. S. P. requirements.—Apothecary, 1909, v. 21, May, pp. 17-18.

An unsigned article describes and illustrates the culture and production of wine in Germany.—Sc. Am. Suppl., 1909, v. 68, p. 392.

Toggenburg, F., reviews the recent French literature relating to the examination and testing of wine.—Schweiz. Wchnschr. f. Chem. u. Pharm., Zürich, 1909, v. 47, pp. 229-232.

Jägerschmid, A., outlines a method for detecting caramel in wine, which involves precipitation by means of albumin and testing the concentrated filtrate with freshly prepared resorcin hydrochloric acid solution.—Ztschr. f. Unters. Nahr. ü. Genussm., 1909, v. 17, p. 269.

Mestrezat discusses the estimation of tartaric acid in wines.—J. d. pharm. et d. chim., Par., 1909, v. 29, pp. 9-15.

Hortvet, Julius, presents the referee report on wine, the determination of volatile and fixed acids, and the examination of color.—Proc. Ass. Off. Agric. Chem., 1909, 26th Ann. Conv., pp. 71-79. (Bull. Bur. Chem. U. S. Dept. Agric., 1910, No. 132.)

Hartmann, B. G., discusses the determination of glycerol in official wine samples.—*Ibid.*, pp. 84-85. See also article by Ross, S. H., on the same subject. *Ibid.*, pp. 85-87.

Thurston, Azor, reports 62 samples of wines examined; none conformed to the Ohio law as "pure wine," but quite a number would pass as "wine" under the law. The most common adulteration found was glucose. It appears that this substance is quite generally used by some of the wine makers in place of cane sugar. In some instances the glucose was sold under the deceptive title of anhydrous sugar, in others under the name of grape sugar.—Proc. Ohio Pharm. Ass., 1909, p. 65. See also Midl. Drug., 1909, v. 43, pp. 454-455.

Notices of judgments dealing with the misbranding of wine and other products are given. (U. S. Dept. Agr., Notices of Judgment 69-81, pp. 23; 82, pp. 7; 83-90, pp. 19).—*Exper. Sta. Rec.*, 1909, v. 21, p. 566.

Additional references on the chemistry and uses of wines will be found in *Chem. Abstr. Soc.*; *Exper. Sta. Rec.*; *Chem. Zentralbl.*, Berl.; *Ztschr. f. Unters. Nahr. u. Genussm.*; *Ann. d. chim. analyt.*, Par.; *Ann. d. Falsif.*; *Proc. VIIth Internat. Congress App. Chem.*, Sec. VIIIc, Bromatology, 1909, London, 1910, pp. 244-245.

#### VINUM AURANTII N. F.

Diehl, C. L., reports from the committee on N. F. recommending white wine in place of sherry or replacing the latter with the natural wine of orange, which is now a commercial article.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1092.

#### VINUM AURANTII COMPOSITUM N. F.

Diehl, C. L., reports from the committee on N. F. recommending the modification or deletion of the formula for compound wine of orange.—*Ibid.*, p. 1093.

#### VINUM CARNIS N. F.

Diehl, C. L., reports from the committee on N. F. recommending a change in the first part of the directions of wine of beef.—*Ibid.*, p. 1093.

#### VINUM CARNIS ET FERRI N. F.

Taylor, Augustus Carrier, asserts that wine of beef and wine of beef and iron are convenient tipples, and that is all.—*Pharm. Era*, 1909, v. 41, p. 494.

Kebler, L. F., asserts that the Commissioner of Internal Revenue seriously considered classing beef, wine and iron as a beverage.—*Ibid.*, p. 446.

An editorial (*Therap. Gaz.*, 1909, v. 33, p. 552) comments on the meat wines, and points out that it is bad enough to administer so-called meat extracts in wine, with the idea that the patient is being nourished, without being subjected to the delusion that drugs are being ingested which are not actually present.

Posey, H. G., refers to a very comprehensive paper by John Phillips Street, of the Connecticut Agricultural Experiment Station (*Am. J. Pharm.*, v. 80, p. 355) who reports on the analysis of 92 samples of beef, wine, and iron.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 997.

Engelhardt and Jones report a study of beef, wine, and iron and conclude that if the N. F. formula is strictly adhered to only a small loss of either nitrogen or iron is experienced.—*Am. J. Pharm., Phila.*, 1909, v. 81, p. 438. Also *Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 870-874.

Sayre, L. E., reports an examination of 25 commercial samples of beef, wine and iron which showed considerable variation in composition. A variation within certain limits is, in part, due to the fact that the ingredients in the formula are without standards.—*Am. J. Pharm., Phila.*, 1909, v. 81, p. 447. See also *Proc. Am. Pharm. Ass.*, 1909, v. 57, pp. 1140-1142, and *Bull. Kansas Bd. Health*, 1909, v. 5, D. A., 16-23.

Pearson, W. A., reports on several samples of beef, wine and iron; only one product was below the Government requirements of 1.4 per cent of proteid and 0.2 per cent of iron oxide. The proteids varied from 2.4 to 0.3 per cent. The iron oxide varied from 0.4 to 0.7 per cent.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 179.

Vanderkleed, C. E., points out that all finished products of beef, wine and iron should be assayed for total nitrogen by the Kjeldahl method, to insure the presence of the required 1.4 per cent protein.—*Ibid.*, p. 122.

Cook, E. Fullerton, asserts that it is practically impossible for a retail pharmacist to distill off the alcohol in wine of beef and wine of beef and iron, and the formula of the N. F. is therefore prohibitively expensive. There should be a more economical process.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 962.

Weinstein, Abraham, thinks the direction of the N. F. to distill off the alcohol unnecessary as the finished product without distilling off the alcohol is not near the alcoholic strength required by the British Pharmacopœia for sherry wine.—*Ibid.*, p. 1132.

Diehl, C. L., reports from the committee on N. F. recommending a change in the first part of the directions for beef, wine and iron. In the formula it is recommended to substitute "a sufficient quantity" for the amounts of water and alcohol. The title should be changed to "Vinum Extracti Carnis et Ferri."—*Ibid.*, p. 1093.

An editorial (*New Idea*, 1909, v. 31, p. 196) commenting on the reply made by the Commissioner of Internal Revenue regarding beef, wine and iron and its use as a beverage, asserts that there is no halo around beef, wine and iron, and that if it is not by virtue of its contents medicinal it has no right to be classed as a medicine.

#### VINUM CARNIS, FERRI ET CINCHONÆ N. F.

Diehl, C. L., reports from the committee on N. F. recommending a change in title to "Vinum Extracti Carnis, Ferri et Cinchonæ."—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 1093.

## XANTHOXYLUM.

Capps, Pratt, McCrae, and Halsey recommend the deletion of xanthoxylum and fluidextractum xanthoxyli from the U. S. P.—J. Am. M. Ass., 1909, v. 53, p. 792.

Fussell, M. H., in recommending the deletion of xanthoxylum from the Pharmacopœia, asserts that it is said to be "not well defined" as to its uses.—Tr. Am. M. Ass., Sec. Pharm. & Therap., 1909, p. 205.

Henkel, Alice, presents a description with illustrations of prickly ash, (1) *Xanthoxylum americanum* Mill. and (2) *Xanthoxylum clava-herculis* L., gives the pharmacopœial name, synonyms, and common names, discusses its habitat and range, describes the trees and bark, and discusses its prices and uses.—Bull. Bur. Plant Ind., U. S. Dept. Agric., 1909, No. 139, pp. 31–33.

An editorial (Brit. M. J., 1909, v. 2, p. 1091) calling attention to Lambert's combination of belladonna, xanthoxylum, and hyoscyamus as a cure for drug habits, states that while fluid extract of xanthoxylum is official in the U. S. P. it would be strange if the addition of this drug to a well-known mixture should produce the striking results said to be claimed by Lambert.

Jones, Eli G., asserts that xanthoxylum increases the action of strychnia.—J. Therap. & Diet., 1909–10, v. 4, p. 294.

## ZINCI CHLORIDUM.

A committee of the Syndicat général de la Droguerie française states that it is impossible to attain the limpidity required by the Ph. Fr. V for the 10 per cent solution of zinc chloride; they ask also that traces of oxychloride be tolerated.—Bull. sc. pharmacol., Par., 1909, v. 16, p. 289.

Poulenc Frères assert that the constant formation of the oxychloride in the course of preparation prevents the fulfillment of the requirement of the Ph. Fr. V that this substance shall completely dissolve in water.—*Ibid.*, p. 410.

The Belgian inspectors of pharmacies report zinc chloride badly preserved, humid or deliquescent, often also strongly basic and incompletely soluble.—J. d. pharm. d'Anvers, 1909, v. 65, p. 588.

Schamelhout, A., asserts that commerce furnishes a pure salt. The Ph. Belg. III tolerates a little oxychloride.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 260.

An editorial (Lancet, 1909, v. 176, p. 562) calls attention to the work of Mercade (Arch. gén. d. méd.) on the toxic effects of zinc chloride.

## ZINCI OXIDUM.

The committee on drug market reports that zinc oxide, with the official per cent of oxide, may contain lead, antimony, and excess of



chloride, making the product irritating. Samples assaying 98.2 to 99.1 of zinc oxide were rejected because of impurities named.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 739.

Dohme and Engelhardt report a shipment of zinc oxide that had to be rejected because of a decided yellow color, though answering all other U. S. P. requirements.—*Ibid.*, p. 718.

Gane and Webster assert that commercial zinc oxide is frequently supplied on orders for this chemical and point out that, even when the product contains the percentage of oxide specified in the U. S. P., it sometimes contains excess of certain objectionable impurities.—*Drug Topics*, New York, 1909, v. 24, p. 69.

Evans Sons Lescher & Webb (*Analytical Notes*, 1909, p. 58) found two out of six samples of zinc oxide to contain more than 4 parts of arsenic per million—12 and 20 parts; the proportion of lead varied from 0.1 to 0.6 per cent.

Southall Bros. & Barclay (*Rep.*, 1908–9, Birmingham, 1910, p. 31) again note that the lower grades of zinc oxide are unfit for pharmaceutical use, arsenic and lead being frequently present in excessive proportions.

The Belgian inspectors of pharmacies report that they still find zinc oxide adulterated with calcium sulphate.—*J. d. pharm. d'Anvers*, 1909, v. 65, p. 587.

Schamelhout, A., asserts that this product is sometimes strongly carbonated. He has found it containing sulphide. The impure products are delivered as pure precipitated zinc oxide.—*Bull. Soc. roy. d. pharm., Brux.*, 1909, v. 53, p. 259.

#### ZINC PERMANGANATE.

Puckner and Hilpert report the results of their examination to determine the purity of zinc permanganate preparations on the market. These results show a variation of from 72.76 per cent to 97.05 per cent, a difference of 23.29 per cent. They recommend a standard of not less than 90 per cent.—*J. Am. M. Ass.*, 1909, v. 52, p. 488.

Heikel, Gunnar, corrects the equation given in a recent paper on the making of zinc permanganate.—*Am. J. Pharm., Phila.*, v. 81, p. 41.

Bernegau, L. H., reports on several samples of zinc permanganate containing as much as 25 per cent of water—insoluble matter. He calls attention to the report on this product in "New and Nonofficial Remedies."—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 127.

Lehn & Fink (*Annual Report for 1909*, pp. 29–30) assert that zinc permanganate bids fair to attain a position of some importance in *materia medica*; it is claimed that this compound yields oxygen

even more readily than potassium permanganate. They present notes on the identification and estimation of this salt.

#### ZINCI STEARAS.

Cook and Dosch outline two methods for the preparation of zinc stearate.—Proc. Pennsylvania Pharm. Ass., 1909, pp. 342-343. Also Am. Druggist N. Y., 1909, v. 55, p. 108.

Posey, H. G., asserts that, if Zinci Oleo-Stearas N. F. possesses any advantages over Zinci Stearas U. S. P., it is not apparent, and as they are such close congeners, it would seem that it could be dispensed with.—Proc. Am. Pharm. Ass., 1909, v. 57, p. 997.

Diehl, C. L., reports from the committee on N. F., recommending the omission of oleo-stearate of zinc, since the Zinci Oleas N. F. and Zinci Stearas U. S. P. amply supply the demand for this class of preparations.—*Ibid.*, p. 1093.

#### ZINCI SULPHAS.

Harbert, J. P., discusses the ophthalmic therapeutics of zinc sulphate, and states that it is employed as a routine treatment following the radical treatment of trachoma.—Eclectic M. J., Cincin., 1909, v. 69, p. 466.

#### ZINGIBER.

Harris, W., discusses the cultivation of ginger in Jamaica and describes the method of planting, harvesting, peeling, and curing the several varieties.—Bull. Dept. Agric., Jamaica, 1909, new series, v. 1, pp. 141-142. Also Pharm. J., Lond., 1909, v. 29 (83), p. 379.

Rusby, H. H., points out that the definition as well as the description for ginger must be changed, so as to include the partly peeled products of Africa and the East Indies.—Midl. Drug., 1909, v. 43, p. 691. Also Pharm. Era, 1909, v. 42, p. 635.

Woods, Charles D., defines ginger as the washed and dried or decorticated and dried rhizome of *Zinziber zinziber* (L) Karst., and contains not less than 42 per cent of starch; not more than 8 per cent of crude fiber, not more than 6 per cent of total ash, not more than 1 per cent of lime, and not more than 3 per cent of ash insoluble in hydrochloric acid.—Rep. Maine Agric. Exper. Sta. (1909), 1910, App. p. 118.

Schamelhout, A., states that in France one may employ white ginger though the Pharmacopœia gives the preference to the gray which alone is official in Belgium.—Bull. Soc. roy. d. pharm., Brux., 1909, v. 53, p. 14.

Holmes, E. M., in discussing the materia medica of Perak, points out that the specimen of *Zingiber officinale*, Rosc., is small and badly prepared. It is labeled "a valuable stomachic."—Proc. Am. Pharm. Ass., 1909, v. 57, p. 755.

LaWall, Charles H., outlines a method for the detection of small quantities of capsicum in ginger.—*Am. J. Pharm., Phila.*, 1909, v. 81, pp. 218-219.

Garnett and Grier present a note on the determination of gingerol in ginger.—*Pharm. J., Lond.*, 1909, v. 29 (83), pp. 159-160. Also *Year-Book of Pharmacy, Lond.*, 1909, pp. 344-346.

Patch, E. L., reports on Jamaica ginger with from 3.7 to 6.2 per cent of alcoholic extract.—*Proc. Am. Pharm. Ass.*, 1909, v. 57, p. 739.

Vanderkleed, C. E., reports 16 assays of Jamaica ginger; lowest 3.142, highest 6.910 per cent oleoresin; 14 above, 2 below standard. Two assays of ginger African gave 8.200 and 9.036 per cent oleoresin; both above standard.—*Proc. Pennsylvania Pharm. Ass.*, 1909, p. 129.

Caldwell, Paul, thinks that fluid extract of ginger can be dropped for the reason that the tincture is used instead.—*Bull. Pharm.*, 1909, v. 23, p. 115.

Cook, E. Fullerton, reports that there is a slight precipitation of the oleoresin from the percolate upon the sides of the glass container. This precipitate could be transferred only with difficulty to the bottle.—*Proc. Am. Pharm., Ass.*, 1909, v. 57, p. 1004.

*Table showing analytical results reported on tincture of ginger.*

| Reporters.                | Samples.  |           | References.  |
|---------------------------|-----------|-----------|--|
|                           | Examined. | Rejected. |  |
| Hill, Edward C. ....      | 2         | 1         | Bull. Colorado Bd. Health, 1909, v. 9, No. 1, p. 2 |
| Sayre and Zieffe .....    | 8         | 4         | Bull. Kansas Bd. Health, 1909, v. 5, D. A., 16-23  |
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## LIST OF HYGIENIC LABORATORY BULLETINS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE

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The Hygienic Laboratory was established in New York, at the Marine-Hospital on Staten Island, August, 1887. It was transferred to Washington, with quarters in the Butler Building, June 11, 1891, and a new laboratory building, located in Washington, was authorized by act of Congress, March 3, 1901.

The following *bulletins* [Bulls. Nos. 1-7, 1900 to 1902, Hyg. Lab., U. S. Mar.-Hosp. Serv., Wash.] have been issued:

\* No. 1.—Preliminary note on the viability of the *Bacillus pestis*. By M. J. Rosenau.

No. 2.—Formalin disinfection of baggage without apparatus. By M. J. Rosenau.

\* No. 3.—Sulphur dioxide as a germicidal agent. By H. D. Geddings.

\* No. 4.—Viability of the *Bacillus pestis*. By M. J. Rosenau.

No. 5.—An investigation of a pathogenic microbe (*B. typhi murium* Danyz) applied to the destruction of rats. By M. J. Rosenau.

\* No. 6.—Disinfection against mosquitoes with formaldehyde and sulphur dioxide. By M. J. Rosenau.

No. 7.—Laboratory technique: Ring test for indol, by S. B. Grubbs and Edward Francis; Collodium sacs, by S. B. Grubbs and Edward Francis; Microphotography with simple apparatus, by H. B. Parker.

By act of Congress approved July 1, 1902, the name of the "United States Marine-Hospital Service" was changed to the "Public Health and Marine-Hospital Service of the United States," and three new divisions were added to the Hygienic Laboratory.

Since the change of name of the service the bulletins of the Hygienic Laboratory have been continued in the same numerical order, as follows:

\* No. 8.—Laboratory course in pathology and bacteriology. By M. J. Rosenau. (Revised edition, March, 1904.)

\* No. 9.—Presence of tetanus in commercial gelatin. By John F. Anderson.

\* No. 10.—Report upon the prevalence and geographic distribution of hookworm disease (uncinariasis or ancylostomiasis) in the United States. By Ch. Wardell Stiles.

\* No. 11.—An experimental investigation of *Trypanosoma lewisi*. By Edward Francis.

\* No. 12.—The bacteriological impurities of vaccine virus; an experimental study. By M. J. Rosenau.

\* No. 13.—A statistical study of the intestinal parasites of 500 white male patients at the United States Government Hospital for the Insane; by Philip E. Garrison, Brayton H. Ransom, and Earle C. Stevenson. A parasitic roundworm (*Agamomermis culicis* n. g., n. sp.) in American mosquitoes (*Culex sollicitans*); by Ch. Wardell Stiles. The type species of the cestode genus *Hymenolepis*; by Ch. Wardell Stiles.

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\* No. 23.—Changes in the Pharmacopœia of the United States of America. Eighth Decennial Revision. By Reid Hunt and Murray Galt Motter.

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\* No. 31.—Variations in the peroxidase activity of the blood in health and disease. By Joseph H. Kastle and Harold L. Amoss.

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\* No. 35.—Report on the origin and prevalence of typhoid fever in the District of Columbia. By M. J. Rosenau, L. L. Lumsden, and Joseph H. Kastle. (Including articles contributed by Ch. Wardell Stiles, Joseph Goldberger, and A. M. Stimson.)

\* No. 36.—Further studies upon hypersusceptibility and immunity. By M. J. Rosenau and John F. Anderson.

\* No. 37.—Index-catalogue of medical and veterinary zoology. Subjects: Trematoda and trematode diseases. By Ch. Wardell Stiles and Albert Hassall.

No. 38.—The influence of antitoxin upon post-diphtheritic paralysis. By M. J. Rosenau and John F. Anderson.

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**TREASURY DEPARTMENT**  
**Public Health and Marine-Hospital Service of the United States**

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**HYGIENIC LABORATORY—BULLETIN No. 80**

**JANUARY, 1912**

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# **PHYSIOLOGICAL STUDIES IN ANAPHYLAXIS**

**REACTION OF SMOOTH MUSCLE FROM  
VARIOUS ORGANS OF DIFFERENT  
ANIMALS TO PROTEINS**

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**INCLUDING REACTION OF MUSCLE FROM NON-  
SENSITIZED, SENSITIZED, TOLERANT,  
AND IMMUNIZED GUINEA PIGS**

**By**

**W. H. SCHULTZ**



**WASHINGTON**  
**GOVERNMENT PRINTING OFFICE**  
**1912**



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## PHYSIOLOGICAL STUDIES IN ANAPHYLAXIS.

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REACTION OF SMOOTH MUSCLE FROM VARIOUS ORGANS OF DIFFERENT ANIMALS TO PROTEINS, INCLUDING REACTION OF MUSCLE FROM NONSENSITIZED, SENSITIZED, TOLERANT, AND IMMUNIZED GUINEA PIGS.<sup>1</sup>

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### INTRODUCTION.

The ever-increasing tendency of modern medicine is toward specificity. On the one hand there is a gradual development of the idea that certain synthetic compounds have more or less chemical affinity for given parasites, and on the other hand the idea prevails of a possibility of securing biological products capable of neutralizing the toxic action of bacteria and their by-products. So with the discovery of each new bacterial disease an attempt is made to find a serum or an extractive that will specifically remedy the disease in question.

In addition to this, physiologists are laying great emphasis upon the importance of internal secretions, and pathologists are able to diagnose many abnormal conditions as a result of hyposecretion or hypersecretion of one set of glands as compared with that of another. In order, therefore, to effect a normal balance of the internal secretion that seems to be at fault a homologous gland from another animal is fed, its extract or its active principle injected. Attempts have also been made to neutralize certain pathological conditions of the blood by injecting serum or some other form of protein. In this way many biological products are being introduced as therapeutical substances. A great majority of these substances contain protein or its derivatives in one form or another. When injected under the skin or into the circulation many of these biological prod-

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<sup>1</sup> Manuscript submitted for publication Nov. 2, 1911.

ucts may accomplish the immediate end for which they were intended. It, however, can not be said with any degree of positiveness whether or no they leave the various tissues in a condition to meet other emergencies with their original efficiency.

In undertaking this series of investigations an attempt is made to throw additional light upon the changed conditions of the different tissues after injections of various proteins. The particular phase of the subject considered is the irritability of various organs to protein before and after having been exposed to small amounts of a similar substance injected into the body fluids. It is generally known that the animal may be rendered highly sensitive toward a given protein by a single small injection of it, so much so that subsequent injections of the same substance may kill the animal in a few minutes or render it very ill for some time after. It is not generally known, however, that many tissues are greatly altered in their reaction, even when apparently no immediate and visible reaction of the body as a whole is evident. Practically nothing is known of the influence that this hyperirritability may have upon the animal's resistance to disease or how it may influence the body's reaction toward ingested food proteins, toward the action of certain drugs, or how it may aid or handicap the various organs in meeting an unusual condition. This paper is the first of a series planned to throw some light upon a few of these problems. The next paper, for which much of the experimental work is already completed, will deal with the reaction of various organs before and after sensitization, so that the experiments herein described are intended merely as a basis for the subject matter to follow.

#### HISTORICAL.

In the following bibliography it is proposed to refer for the most part only to that literature bearing upon the physiology of anaphylaxis and to consider more especially that side of anaphylaxis dealing with changes in the blood pressure, respiratory volume, and the reaction of muscle and nerve.

Until quite recently the literature dealing with the physiology of problems connected with biotherapy has been very limited, but the great interest aroused by the remarkable phenomena of anaphylaxis tempted bacteriologists and pathologists to resort to graphic methods of physiology to explain the toxic action of a second injection of protein. But it was some time before it was even accepted by bacteriologists that the immediate cause of death in anaphylactic animals was asphyxia, and that the low temperature as well as the prostration occurring in anaphylactic shock was due to a low blood pressure. As early, however, as 1839, according to Morgenroth, Magendie observed that a second injection of a "nontoxic" protein

usually caused death in rabbits. But the first experiments on anaphylaxis as such seem to have been done by Richet in 1902 and 1903 (<sup>27</sup> and <sup>28</sup>), when it was shown that animals could be highly sensitized toward actinotoxin. This acquired hyperirritability of the animal toward a subsequent injection was called by Portier and Richet "anaphylaxie."

Richet (<sup>28</sup> and <sup>29</sup>, 1904 and 1905), in his experiments with "congestine," found that small doses given to sensitized dogs caused vomiting, diarrhea, semiparaplegia, and dyspnea, ending in complete prostration. In his work with "actinotoxin" he observed a fall of blood pressure which he attributed to paralysis of peripheral organs, and in certain special cases he also thought that there was possibly a change in the central nervous system.

The first in this country to perform extensive experiments on this subject were Rosenau and Anderson, in the Hygienic Laboratory (<sup>30</sup>, Apr., 1906). It was thought by them that the serum paralyzed the nervous mechanism of respiration, assuming a profound chemical change in nerve cells of the respiratory center, whereby it ceased to function in sending out stimuli necessary to rhythmic respiratory movements.

Gay and Southard (<sup>18</sup> and <sup>19</sup>, 1908 and 1909) later called attention to the expanded condition of the lungs at the time of death and attempted to show that the stimulating effects of serum may be transmitted over two or three separate conducting elements or neurons. It was found that respiratory symptoms could be produced in sensitized guinea pigs by touching the vagus nerve with a pledget of cotton soaked in horse serum, whereas salt solutions applied in the same way failed to produce similar effects, and serum in nonsensitized animals also failed to produce the same effects and to cause diaphragmatic contractions. From this they conclude that the vagus nerve is sensitized. In addition to this assumption their hypothesis of local anaphylaxis of the respiratory centers assumes that a condition is induced by the anaphylactin that stimulates the nervous elements excessively when brought into contact with the toxic elements of the horse serum. The cause of death, therefore, being indirect, and founded on hyperstimulation of the phrenic nerve and cessation of respiration in the inspiratory phase, the lungs being in a condition of emphysema at the time of death.

Although Gay and Southard came nearer than any one else to observing the real cause of death of guinea pigs, they were so intent upon disproving the theory of antibodies that they overlooked the most important factor in causing asphyxia, and to my mind, also failed to prove by their precipitin tests, localized injection experiments, and even by their histological methods, that serum anaphy-

laxis was a question of cellular irritability and not the formation of antibodies. This emphasis, however, laid upon the element of asphyxia oriented other observers who were more interested in the physiology of anaphylaxis, and perhaps served to attract attention from the predominating conception that anaphylaxis is essentially a blood phenomenon and not influenced by any special organs.

Biedl and Kraus (<sup>12</sup>, Mar. 18, 1909) used dogs that had been sensitized subcutaneously with from 8 to 5 c. c. of horse serum 21 or more days before testing. The second dose of 10 to 30 c. c. of serum was injected into the femoral; 30 seconds or 1 minute thereafter the non-anesthetized animal showed marked excitement followed by vomiting, involuntary urination, and defecation; the animal lying quietly with hanging head, open eyes, and when placed upon its feet was unable to stand, and lay with outstretched legs as if paralyzed, the corneal reflex and the sensibility of the skin remaining intact. From time to time there were strong expiratory spasms, retching, and attempts to pass feces. At no time was there observed dyspnea, but as a rule there was marked depression, characterized by muscle weakness, and anuria that lasted for some hours and sometimes ended in death, or the animal recovered completely. But there were never those violent respiratory symptoms observed in the guinea pig.

They concluded that the action of the serum is not through a poisonous action upon the blood, hindering its respiratory function, but rather upon the blood vessels themselves. For if the blood pressure be studied it is found that 10 c. c. of horse or of ox serum does not affect the blood pressure of normal animals, but a similar intravenous injection causes after 30 to 60 seconds in the sensitized dog a marked acceleration and weakening of the heart beat and the blood pressure sinks from 120 or 150 to 80 or 60 and even to 40 millimeters of mercury. This stage corresponds to the period of depression in the intact animal, and as the blood pressure gradually returns to normal the animal itself recovers and the symptoms disappear, so that there is more or less of a parallism between the lowness of blood pressure attained and between the gravity of the symptoms of collapse.

It is assumed that the anemia of the respiratory and the vomiting centers and also that of the stomach, intestine, and bladder, results in stimulating them to greater activity, while vasodilatation of the abdominal blood vessels causes increased peristalsis and emptying of the intestine of feces.

If the animal be so anesthetized as to do away with all reflexes, it is found that the toxic dose of serum no longer causes emptying of the bladder and intestine or of retching movements, but there still remains the reaction of the blood vessels indicated by a fall of blood pressure.

Reasoning according to Marey that a fall of blood pressure, accompanied by an accelerated pulse, does not result from a reduced irritability of the heart, but rather from a lessening of the peripheral resistance in the blood vessels, Biedl and Kraus conclude that the heart is not responsible for the low blood pressure, and the cause is to be found only in vasodilatation.

An attempt was made to see if the vasodilatation is central or peripheral in origin. It was found that at the time of lowest blood pressure stimulation of the peripheral end of the splanchnic nerve and intravenous injections of 0.1 to 0.2 milligram of epinephrin did not cause a rise of blood pressure, or at best only a slight rise. Based upon the results of Böhm and of Dixon with apocodeine, these writers confirm their beliefs about the cause of the fall of blood pressure. For though epinephrin is said to be practically inert at the time of lowest blood pressure but more active as the blood pressure returns to normal, barium chloride causes a sharp rise, even when the blood pressure is at its lowest, because of the serum, and, if injected before the serum, prevents the fall of pressure usually observed after serum alone. There were, however, certain anaphylactic dogs that did not react by giving a rise of blood pressure after barium chloride. To explain this they refer to the work of Böhm, Popielski, and Netter. They assume that barium is more intense as a stimulant than the toxic substance in serum is a paralyzant.

Arthus (<sup>4</sup> and <sup>5</sup>, Apr. 13, 1909) studied dogs, rabbits, guinea pigs, rats, and pigeons, especially with a view to ascertaining if any of these animals give skin reactions resembling those observed in man after repeated injections of serum.

Dogs were injected subcutaneously at seven-day intervals with 10 c. c. of horse serum. No symptoms, local or otherwise, were observed. If, however, 10 c. c. of horse serum were injected intravenously into the sensitized animal, there resulted a fall of blood pressure. In less than a minute there was a fall of blood pressure amounting to as much as 30 or 40 millimeters, and this was accompanied by a diminished coagulability of the blood. The respiration is said not to have been accelerated as in other animals, but otherwise no mention is made of it. Dogs then are rendered more sensitive by the first injection of either serum or proteose, and this is indicated after the second dose primarily by a fall of blood pressure and a decrease in the coagulability of the blood.

Rabbits differed from dogs and the other animals studied in that they reacted to subcutaneous injections when repeated at seven-day intervals. The initial injections, just as in other animals, whether subcutaneous, intraperitoneal, or intravenous, caused no local or systemic phenomena, but repeated injections some days after the first dose caused either mild or serious, immediate or delayed, symptoms,

depending in part upon how they were injected. Subcutaneous injections caused infiltration, degeneration, and finally gangrene at the site of the injection, whereas intravenous injections caused an immediate fall of blood pressure from 100 to 110 millimeters to a pressure of only 30 or 40 millimeters, the heart beat weakly, the respiratory movements grew weaker, passing into polypnea. There was marked intestinal peristalsis, accompanied by involuntary defecation. Rabbits were found to be highly, but not specifically, sensitized toward serum, egg white, milk, gelatin and peptone, so that only 0.5 c. c. of serum may cause death, but there is a difference in the intensity of the reaction toward different proteins, egg albumin being less toxic than serum, and gelatin more toxic than proteose. In none of these experiments, however, does Arthus attempt to show upon what organs these different substances act.

Kraus and Volk (<sup>22</sup>, July 25, 1909), upon repeating Besredka's experiments with heated serum, found that the blood pressure of sensitized dogs and guinea pigs was not influenced by large quantities of serum heated to 90° (120 to 200 c. c. for dog), but subsequent injections of normal serum caused excitement, vomiting, depression, decreased coagulability of the blood, leucopenia, and the typical fall of blood pressure illustrated by two curves.

Biedl and Kraus (—, July 5, 1909) in a later article recapitulate the results just reported. They again emphasize the idea that in the anaphylactic dogs the most prominent symptoms are a fall of blood pressure and a decreased coagulability of the blood. In the rabbit neither of these changes were observed in spite of the positive findings of Arthus. Special emphasis is laid upon the idea that the fall of blood pressure in dogs is a result of vasomotor paralysis and that the heart is not involved. They also agree with Richet that the fall of blood pressure following amyl nitrite differs from that observed during serum anaphylaxis or peptone intoxication. Finally Biedl and Kraus maintain that while peptone calls forth symptoms in both normal and sensitized animals indistinguishable from those in typical anaphylaxis, yet dogs, sensitized with different sera, that had recovered from the toxic dose of one of these sera failed to react again, but did react to one of the other sensitizing sera. Horse serum acts upon animals sensitized with horse serum, but not upon those sensitized with ox serum and vice versa i. e., each serum is specific in its action.

Abelous and Bordier (<sup>1</sup>, July 12, 1909), state that Bouchard, 1884, described dilatation of the cutaneous blood vessels after an intravenous injection of urine. The substance is precipitated by alcohol or by ammonium sulphate, is very soluble in water, but not dialyzable. It is not precipitated by heat, but its action is destroyed

when heated to 110–120° C. for some minutes. The substance has some of the properties of a protein, especially that of a proteose. When separated as a white powder, 1 to 2 centigrams per kilogram animal, causes a gradual and prolonged fall of blood pressure.

If the carotid blood pressure and the intracranial pressure be simultaneously recorded, it is found that "urohypodensine" causes a lowering of the carotid blood pressure, but a pletismographic record of the brain indicates an inverse effect on the pressure. From this it is assumed that the systolic energy of the heart is not influenced. The primary cause of the lower blood pressure is paralysis of the constrictors and an excitation of the vasodilators. It is, however, possible to cause, during the period of low pressure, reflex constriction by electrical stimulation of the central end of the vagus; therefore the fall in blood pressure is due to excitation of the vasodilators in general. This is peripheral in origin, since destruction of the central nervous system does not influence the end results.

Auer and Lewis (°, Aug. 7, 1909), in a preliminary report, record some very interesting observations. It is found that when sensitized guinea pigs receive an intrajuglar injection of 0.5 to 1 c. c. of horse serum, or 10 milligrams of edestin, the animals die of asphyxia a few minutes later. The respiration is remarkably modified, the chest no longer expands with each inspiration, but, instead the front and sides of the thorax sink in. The respirations that are much more powerful than normal are accompanied by tonic and clonic convulsions, gradually become less and less, and finally cease. The heart continues to beat regularly for minutes after all respiration has ceased. In spite of respiratory movements that are more powerful than those of normal animals if the animal breathe from an air bottle connected with a tambour the record shows that the lever hardly moves though the animal is making tremendous respiratory efforts, indicating that little or no air is entering the lungs. The blood in the carotid artery at this time is black. If both the vagi are cut or if the cord and the medulla are destroyed, the animal given artificial respiration, the lethal dose of serum still produced the typical anaphylactic symptoms. It was found upon opening the chest that the lungs remained expanded when excised and even small pieces of the lungs did not collapse. This immobility of the lungs in a more or less inspiratory condition is thought to be due to tetanic contraction of the musculature of the fine bronchioli and alveolar ducts, imprisoning air in the alveolar sacs. A slight degree of pulmonary edema possibly aids in the production of this pulmonary inspiratory immobility.

A subcutaneous injection of 0.5 to 1 milligram of atropin sulphate some time previous to the second dose of serum usually results in preventing or greatly reducing the pulmonary symptoms.



Friedberger and Hartoch (<sup>16</sup>, Sept. 12, 1909). Friedberger and Groeber recorded the blood pressure and respiration of sensitized rabbits and guinea pigs showing the influence of concentrated salt solutions upon the action of toxic doses of sheep serum. The four curves figured by Friedberger and Hartoch do not show the "kolosalen" difference between the controls and the salt treated animals that one might infer from the text, but there is a difference as one might expect since it is known that such large doses of salt have a paralyzing effect upon muscle, hence result in more even curves. It is, however, said that if a rabbit weighing 2,950 grams be injected, into the ear vein first, with 6 c. c. of concentrated salt solution and about seven minutes later with 9 c. c. of sheep serum, the blood pressure curve shows a gradual fall of pressure, but no irregularities, and the respiration curve is even and regular throughout. On the other hand, a rabbit weighing 3,010 grams injected with 9 c. c. of serum alone, records curves that indicate a distinct fall of blood pressure, a vagus pulse, and a greatly altered type of respiration. Guinea pigs are reported as showing a similar difference when treated with salt solutions, but no curves are included in the text.

Gley and Pachon (<sup>20</sup>, Nov. 8, 1909) made an attempt to show whether or not there was a specific resistance in tissues of animals immunized toward serum. The excised rabbit heart perfused by Langendorff's method and made to record its contractions according to Pachon, was treated with eel or torpedo serum. After perfusing the excised heart from either normal or immunized rabbits with Ringer-Locke solution, a solution of eel serum, 1 part or 4 parts to 4,000 parts of Ringer, caused more or less irregularities in the rhythm. Sometimes these group contractions were preceded by an acceleration of the rhythm. The torpedo serum 10 to 20 c. c. per 1,000 also caused arrhythmia and sometimes diminished contractions. The difficulty in studying the excised heart of immunized animals is that one has to deal with hypertrophied hearts. However, the few hearts that were tested gave rather inconsistent results. It would seem that hearts removed from the body and perfused with Ringer-Locke solution do not resist the toxic serum so well as when in the intact animal, perhaps because of the protecting action of antitoxin in the blood. Any resistance that might be attributed to the cellular elements alone seemed either absent or inconstant, so that some hearts from immunized animals reacted about the same as those from normal animals. However, in a few excised hearts from rabbits immunized toward ichthyotoxins there seemed to be some resistance to the toxin, probably because some of the antitoxin of the blood had become fixed in the cells themselves.

Pearce (<sup>24</sup>, Nov. 19, 1909) found that normal dog's urine contains a depressor substance, intravenous injections of 3 c. c. causing a fall

of blood pressure equal to 40 or 70 millimeters of mercury. The exact nature of the substance was not determined, its action is destroyed by prolonged heating, but is not so when heated at 100° C. for a short time. The alcohol precipitate of a given volume of urine has a depressor action equivalent to the urine itself. In dogs with tubular nephritis after uranium nitrate or potassium chromate, the depressor substance disappears or is greatly diminished in amount at the third to sixth day. But in vascular nephritis due to arsenic or cantharidin there was no diminution in the amount of depressor substance. The nonelimination of the depressor substance is accompanied in some animals by a low blood pressure.

Anderson and Schultz (<sup>3</sup>, Dec., 1909), in a preliminary paper, were the first to confirm the results of Auer & Lewis (<sup>2</sup>), reporting practically the same findings as those described by these writers. The cause of immediate anaphylaxis is thought to be due to asphyxia brought on by immobilization of the lungs in the inspiratory phase. Tambour records and blood-pressure determinations showed that in spite of the forced movements of the diaphragm and chest, practically no air was expired or inspired, and if by additional pressure more air was forced into the lungs they became more greatly distended and remained there. At such a time the blood in the arteries was found to be dark, the large veins and pulmonary vessels were distended; the heart, though beating, did so less forcibly and more slowly. The blood pressure sank to a very low level. This immobilized condition of the lungs was assumed to be a result of tonic contraction of the smooth muscle of the bronchioli. Although large doses of atropin were used a large percentage of pigs died. Some, however, did recover because of the atropin, but it was observed that if the lungs were previously filled with pure O<sub>2</sub> the toxic dose required much longer to kill and even tided the animal over the critical period. Furthermore, such narcotics as chloral and chloral-urethane, not only delayed death, but saved some animals. The best results in preventing immediate anaphylaxis, however, were obtained with animals first injected with epinephrin and later with chloral-urethane and an artificial respiration of pure oxygen. Observation showed that those animals that lived longer than five minutes possessed more or less collapsible lung area, indeed the relation between the length of time before death and the amount of functioning lung tissue bore to each other quite a definite ratio. Pigs, however, that died after one or two hours did so primarily because of a very low blood pressure.

Pearce and Eisenbrey (<sup>25</sup>, Dec. 15, 1909), in a preliminary report, confirm Biedl and Kraus's experiments with dogs. The fall of blood pressure in dogs is said to be unaccompanied by any disturbance in the heart rate or by any respiratory symptoms other

than those due to medullary anemia because of the low arterial blood pressure. The recovery from the low blood pressure is a slow process and oncometric records of the kidney, spleen, and intestines show a diminished volume of these organs, the decrease in volume corresponding sharply in time and extent with the fall in blood pressure. A record of the pressure in the iliac vein shows a rise of pressure equivalent to that of 6 to 10 millimeters of water, so that there is an accumulation of blood in the venous trunks of the abdomen and in the liver. These investigators conclude, as did Biedl and Kraus, that the essential feature of this vascular disturbance is a loss of tone of the veins of the splanchnic area. The disturbance in dogs is then characterized by a paralysis of smooth muscle of the blood vessels. Finally the results of Biedl and Kraus are confirmed with reference to the resemblance in the blood-pressure changes following injections of Witte-peptone to those of horse-serum anaphylaxis.

Braun (<sup>14</sup>, Dec. 18, 1909) observed that guinea pigs recorded a fall of blood pressure soon after the toxic dose of serum. He, however, concludes that the fall of blood pressure is not the primary cause of death in guinea pigs, and that there is some difference between the reaction of dogs and that of guinea pigs. The guinea pig's reaction partakes more of a nervous character, accompanied by a fall of temperature and of blood pressure, due to the interaction of the serum with antibodies that have been taken up by the tissue cells, especially those of the central nervous system.

Auer and Lewis (<sup>15</sup>, Jan. 4, 1910) describe in detail the gross reactions of guinea pigs dying from immediate anaphylaxis, paying particular attention to the physiology of respiration. In some experiments the blood pressure was recorded by a Hürthle spring manometer. It was observed that there was a rise of blood pressure a few seconds after the toxic dose of serum and at a time when the respiration was accelerated. At first there is no change in heart rate, but as the respiratory difficulty increases the heart may show some irregularities, probably due to reflex vagus inhibition. If this reflex is not masked, the blood pressure now reaches its maximum and then begins to drop slowly. This drop continues so that five to eight minutes after, the maximum blood pressure has fallen to 10 or 20 millimeters of mercury. Inspection of the heart shows that, following the preliminary slowing, heart-block develops, which is probably due to asphyxia.

The respiratory changes during immediate anaphylaxis, appearing to be the more important phenomena, were investigated more thoroughly. In some experiments a Marey tambour was connected with a 4 to 6 liter bottle, a short tube having as large a caliber as possible connecting it with the trachea, and a record taken on smoked paper. In other experiments a pleural cannula was inserted into the pleural

cavity and the intrathoracic pressure changes, after partial reestablishment of the normal negative pressure, recorded by a Marey tambour. As a final check in animals with the medulla and cord destroyed or paralyzed by curarin, the volume changes of the lungs under artificial respiration were recorded by placing the animal up to the neck into an air plethysmograph, or indicated by means of a receiving tambour fixed directly to the chest.

By these methods it was possible to demonstrate graphically that shortly after the toxic dose of serum (0.2 c. c.) the respiratory oscillations slightly increase, then rather rapidly diminish in size as the respirations occur, until finally none are seen. The records indicate that the final position of the chest is in a more extended condition than was ever recorded before the injections. A post-mortem examination showed that the lungs formed a mold of the chest cavity, filling it completely, so that when the walls were cut away even the markings of the ribs could be seen. If, however, the proper dose of atropin was injected at the right time the oscillation of the lungs was sometimes reestablished. The possibility of pulmonary edema, emphysema, submucous edema in the bronchi and bronchioli was rejected as the cause of death.

Since most of the changes in respiratory volume observed in these experiments have been produced by stimulation of the peripheral vagus and agree with the findings of Einthoven, Dixon, and Brodie; since experiments on other animals have shown that blood-vascular changes will not alone account for these lung changes; and since it is generally thought that atropin paralyzes the bronchial muscles, Auer and Lewis feel justified in assuming that the second or toxic dose of serum in sensitized guinea pigs acts upon the bronchial muscles, producing swiftly a tetanic contraction of the finer bronchial muscles, which completely occludes their lumen and thus prevents the entrance and escape of air.

Friedberger and Vallardi (<sup>17</sup>, Mar. 4, 1910), in experimenting with anaphylatoxin, obtained immobilization of the guinea pig's lung, showing that the toxic symptoms resembled in every detail those said to be characteristic of immediate anaphylaxis. Furthermore, it is pointed out that in guinea pigs dying from doses of toxic normal serum, from toxic antiserum (Friedberger, demonstrated by Doerr), from peptone (Biedl and Kraus), from the poison of Vaughan and Wheeler (Friedberger), and from the ferment of Friedberger and Gröber, the same condition is observed. Furthermore, Doerr has shown that saponin, oleic acid, sodium oleate, and chloroform cause immobilization of the lungs. Gröber has shown that morphine poisoning leaves the lungs immobilized in the inspiratory phase. Indeed, most agents that influence respiration of guinea pigs leave the lungs in an expanded condition, and the condition observed in

death from anaphylactic shock is not at all characteristic of serum anaphylaxis.

Biedl and Kraus (<sup>13</sup>, Mar. 17, 1910), in the light of other investigators' work and after a more careful study of the reaction of the sensitized guinea pig, came to the conclusion that there are certain essential differences in the reaction of sensitized dogs, rabbits, and guinea pigs toward the toxic dose of serum. The second or toxic intravenous dose of serum causes in the guinea pig a rise of blood pressure lasting from 30 seconds to 2 minutes, followed by a fall of pressure, at which time the heart beats are greatly weakened and the animal is in a state of collapse. This fall of blood pressure, as Braun had already pointed out, is thought to be only a secondary phenomenon. The guinea pig differs from the dog in that the latter is greatly depressed from the start, whereas the former only shows signs of depression after a stage of marked stimulation due to asphyxia. After a short period, during which the respiratory movements are greatly accelerated and become slower and dyspnoeic in character, the animal shows all the signs of asphyxia. The phenomena observed in the lungs are qualitatively similar to those caused by stimulating the neck vagus electrically or by giving muscarine, pilocarpine, physostigmin, barium chloride, or digitalin, but quantitatively serum surpasses them all in its action. In the light of experiments by Einthoven, Beer, Brodie, and Dixon, the bronchioconstrictors are responsible for the results.

They find that if the respirations be registered from the trachea a few seconds after the toxic dose of serum, it is noticed the respirations are stronger and faster and that the dyspnoea is of an inspiratory character. The record shows a gradual decrease in the excursions of the recording lever, with it finally resting in a position indicating respiration. Inspection of the chest, however, shows that part of the respiratory muscles are in a state of clonic spasm, and simultaneous records taken of the volume changes in the lungs and of the movements of the respiratory muscles show that the lungs proper are static. Even an H. Meyer respiration apparatus fails to establish artificial respiration, and after a few seconds or two minutes the blood pressure rapidly falls and the heart beats grow weaker and weaker.

No data could be obtained that supported the idea that there was an increased pressure in the pulmonary circulation or hyperemia of the lungs. The histological picture seemed to indicate blood-free capillaries. Furthermore, an intravenous injection of 1 to 5 or 10 milligrams of atropin caused in a few seconds a reestablishment of the lung excursions. And 0.005 gram of atropin injected into a vein a few minutes before the toxic dose of serum hinders action of the serum.

One-hundredth c. c. of serum (intravenous) causes a perceptible change in the respiratory volume, but has little influence upon the heart, while an intravenous injection of 0.5 to 1 c. c. of serum may throw the heart into fibrillar contractions. Death, however, is due primarily to asphyxia and not to heart failure, as is shown by more careful inspection of the lungs of guinea pigs dying from anaphylactic shock, for these fill the chest cavity and upon removal do not collapse. The lungs are strongly filled with air, pale and poor in blood. Such a lung after tying the trachea and freshly fixed in formal shows a microscopic structure with widely distended alveolæ, the blood vessels of which are wholly collapsed, allowing the delicate alveolar walls to be in juxtaposition. The inspiratory expansion is at its maximum when the experimental animal had been given artificial respiration. In contrast with the distended alveolæ the lumina of the larger and smaller "Bronchien" are strongly reduced so that the mucous membrane of the "Bronchien" appears to be thrown into folds. Whether this condition of the mucous membrane is a result of contraction of the abundant circular musculature in the guinea pig can hardly be determined histologically. A folding of the mucous membrane is also found in the "Bronchien" of normal guinea pigs that have been asphyxiated. In the lungs of the latter, however, there is not that expanded condition of the alveolæ, the alveolar walls being rather thick and traversed by filled capillaries.

Since dogs do not die from asphyxia as do guinea pigs, it is evident that the phenomena must be explained in some other way. In dogs there is first of all a paralysis of the peripheral blood vessels. The respiration, however, is not entirely free from influence, for there are spasm-like respirations in the phase of deepest depression which can be attributed to stimulation of the bronchial muscle. It is thought that serum causes the smooth muscle of the blood vessels to relax in the dog, whereas in the guinea pig it causes the smooth muscle of the bronchioles to contract. This difference in the reaction of smooth muscle is explained by assuming a difference physiologically, on the basis of its innervation, for, as is pointed out, the bulbar autonomies of the vagus innervate the bronchial muscle, while the blood vessels involved are supplied by sympathetic fibers of the splanchnics. Hence the serum must act upon the myo-neural junction (Langley) and not upon smooth muscle itself.

W. H. Schultz ("Mar., 1910) in a preliminary report showed that excised smooth muscle from various organs of normal guinea pigs is stimulated by horse serum. It is also shown that muscle from sensitized animals when treated with serum contracts. A comparison of the relative degree of contractility recorded by nonsensitized and by sensitized muscle after similar treatment with serum is greater for the sensitized animal than for the nonsensitized one. Most of the

work was done with intestinal muscle, but experiments were also performed with the bladder, uterus, and blood vessels.

Manwaring (<sup>23</sup>, May 3, 1910), in order to determine which tissues cooperate with the anaphylactin in producing shock, applied temporary ligatures about the aorta and vena cava, above the diaphragm; the upper half of the anaphylactic body would not react toward the serum. It is said that the supradiaphragmatic tissues and organs are not concerned in anaphylaxis; the central and peripheral nervous system and nerve endings, the cardiovascular and pulmonary mechanisms, the connective tissue, lymphatic tissue, smooth and striped muscle are each ruled out as being the primary mechanism.

If the ligatures are released, allowing the serum to pass below the diaphragm, a typical shock may develop. Removal of the intestines, from the pylorus to the rectum with the attached spleen does not prevent the shock; a further removal of the stomach, kidneys, adrenals, ovaries, and uterus, and shock still occurs. The liver is therefore the essential, primary organ responsible for anaphylactic shock.

The blood was then either defibrinated or treated with hirudin to prevent clotting, the intestine removed, T cannula placed in the abdominal vena cava leading to the external jugular, and the liver excluded by temporary ligatures. With the liver tied off sensitized dogs do not react to serum. If after the injection the liver ligatures be released the animal develops shock.

The liver was then wholly excluded by placing an additional cannula in the portal vein, carrying the portal blood also to the external jugular. Of the six successful experiments four gave no shock with the liver ligature closed, but developed reactions upon releasing the ligature. Two animals gave slight shock with the liver excluded; this slight shock is attributed to the intestine and the pancreas.

It is stated that if the ligatures are kept closed but two or three minutes after the serum injection a shock usually results. If, however, the ligatures are not released till five minutes, no shock develops, although a second serum injection with the ligatures open will now give a typical reaction. This, it is thought, shows that there is, either in the blood itself or in the nonreacting fixed tissues, a mechanism for rendering the injected serum anaphylactically inactive. Finally he summarizes his view of anaphylaxis by defining the acute anaphylactic reaction in dogs as "an explosive autointoxication of hepatic and intestinal origin, which autointoxication is modified, inhibited, and overcome by a more or less efficient antianaphylactic mechanism, part, at least, of which is situated in other organs."

Pearce, R. M., and A. B. Eisenbrey (<sup>24</sup>, May 4, 1910), in a long series of experiments with dogs observed that "intravenous injection of horse serum into a normal dog produces no clinical symptoms and

no change in blood pressure." An intravenous injection into a conscious animal three weeks after a subcutaneous injection of the same serum produces the following clinical manifestations:

Weight, 4,680 grams; 5 c. c. subcutaneously February 26; 30 days later, March 21, 5 c. c. slowly injected into a superficial vein of the left hind leg under local anesthesia. Before the injection was completed, restless, retching movements; two minutes later vomiting, involuntary evacuation of feces and urine; animal took few steps slowly and with peculiar stiff-legged gait. End of three minutes, lay on side, head prone, retching movements continued. Respiration deep, labored, 28 instead of 36 before injection. No dyspnoea, pulse not perceptible in femoral artery, reflexes normal. Vomiting, defecation, urination intermittently for seven minutes after injection. Animal when placed on feet could not stand, seemed conscious, but indifferent to surroundings. End of 22 minutes pulse in femoral artery, animal could stand, but preferred to lie down. End of 32 minutes got up, walked (weakly) around. End of 60 minutes respiration 28, pulse palpable, weak, refused food; slight diarrhea, bloody; died in less than 15 hours.

The post-mortem changes observed in such an animal are as follows: Intestines appeared somewhat dark in color and the lower 15 centimeters of rectum showed pinhead petechial spots beneath the peritoneum, larger ecchymotic areas occurred beneath the serosa of the gall bladder. In the greater curvature of the stomach the mucosa over two areas of about 1.5 centimeters in diameter was intensely hemorrhagic and swollen and some superficial erosion of the epithelium. Two centimeters below the pylorus and a distance of 27 centimeters along the small intestine the mucosa much swollen and hemorrhagic; below this area Peyer's patches were elevated and dark colored; a few centimeters below the ileocaecal valve the colon was intensely hemorrhagic, with considerable erosion of the epithelium. The heart, lungs, spleen, liver, and kidneys all appeared normal.

In one group of experiments a small normal dog (A) was exsanguinated and then by Crile's method transfused with the blood of a larger sensitized dog (B) until the blood pressure reached its original level. The sensitized dog (B) was then bled to exsanguination and transfused from a third normal dog (C) until its pressure reached its previous normal level. A toxic dose of serum causes in (B) a fall of blood pressure, but does not do so in (A). This is assumed to prove that the phenomenon of anaphylaxis is due to a reaction of the fixed cells and not due to primary or secondary changes in the blood.

The blood pressure was taken from the left femoral artery by a mercury manometer. The changes in blood distribution were determined by oncometers of gutta-percha applied to the spleen, kidney, and intestine, by recording the venous pressure of the inferior vena cava, a cannula extending into it by way of the right common iliac, by plethysmographic records of the fore limb, and by measuring the intracranial pressure.



The temperature of the animal was maintained by a hot-water coil. The serum was injected into the right saphenous vein about 21 days after having been sensitized by a 5 c. c. subcutaneous injection of horse serum. The toxic dose of serum was usually 5 c. c., but varied from 2 to 6 c. c.

From six observations the following results were obtained:

Anaphylactic shock is characterized by an abrupt fall of blood pressure averaging 50 to 70 millimeters of mercury that is independent of an initial change in heart action, though during the continuance of low pressure the amplitude of the pulse wave is greatly diminished, the result presumably of the small amount of blood reaching the heart. Respiratory disturbances, except in so far as they occur as a result of medullary anemia from low blood pressure, are absent. There is a decrease in the volume of the kidney, intestine, and spleen, being greatest for the kidney and least for the intestine. There is also a slight decrease in the volume of the extremity and of the brain. The pressure in the inferior vena cava shows an increase of 6 to 10 millimeters of water, and the liver and large veins are filled more than usual with blood. The low blood pressure is due to lack of tonus of the splanchnic blood vessels, characterized by venous congestion. The spinal cord, vagi, cervical, sympathetic, and splanchnic nerves, were severed, but no change was noted in the reaction toward the serum.

Decapitated animals in spite of the existing low blood pressure developed a still lower one upon injecting serum, and the same condition occurred after destroying the cord. By transfusing the head so that no blood reached the trunk, serum injected into the transfusing vessel caused only a slight fall in blood pressure (16 millimeters) in the transfused sensitized dog, but when serum was injected into the circulation of the trunk there was a fall of 74 millimeters.

The results with barium chloride and epinephrin are not conclusive. Both drugs caused a rise of blood pressure, but epinephrin not equal to that usually observed with this substance in normal animals. The nerve endings, though not completely paralyzed, show a greatly reduced irritability, since neither adrenalin nor electric stimulation of the splanchnics cause constriction of the blood vessels. After large doses of apocodeine injections of serum do not cause a further fall of blood pressure; hence it is assumed that the serum paralyzes primarily the nerve endings, resulting in vasodilatation.

Doerr and Moldovan (<sup>18</sup>, May 30, 1910), in their experiments with toxic, normal, and immune sera, observed in guinea pigs that after injecting ox or eel serum, guinea-pig precipitins and hæmolysins and anti-sheep serum, there were the typical dyspnoic symptoms. Five milligrams of atropin sulphate hindered these symptoms, providing

the dose of serum was not too large. Five to 10 milligrams endovenous injection of saponin caused immobilization of the lungs; arachnolysin did the same thing. Two c. c. of ox serum injected into a vein of a guinea pig caused death after seven minutes in marked dyspnea with bloody foam exuding from the nose.

Auer (\*, June 24, 1910), endeavored to determine whether vagus section and degeneration influenced the action of serum in anaphylactic guinea pigs. In one set of experiments both vagi were cut in sensitized animals shortly before the injection of the toxic dose. Another set of guinea pigs were sensitized and 13 days later 1 to 2 centimeters of one vagus nerve excised. Thirty to 51 days after vagus section 0.8 to 1.5 c. c. of a 10 per cent solution of heated horse serum was injected into the jugular vein. Six of the animals died under typical anaphylactic symptoms in 4 minutes. In a third series, composed of 8 animals, one vagus was cut 55 days after sensitization. The toxic dose of serum was injected intravenously 6, 13, or 14 days after vagus section. All but two died and these two had received atropin previous to the dose of serum.

In another series of nonsensitized animals one vagus was resected and 133 days after vagus section the animals were sensitized; 14 days later a toxic dose, 0.15 to 0.5 c.c., of serum was injected into a vein, one of these receiving a prophylactic dose of atropin. All but the atropin pig died within seven minutes. In each of these series the lungs, except for a few inconstant irregularities, resembled the lungs of typically anaphylactic animals. It is therefore concluded that depriving the bronchial muscles of one side of the lungs of their motor innervation does not interfere with sensitization nor the production of the typical anaphylactic lung and that there is direct sensitization of the muscle substance, nor does complete degeneration of the vagus nerve after sensitization interfere with the course of immediate anaphylaxis. Furthermore, partial degeneration of the vagus nerve, so that the bronchiodilator fibers are still physiologically active after sensitization has taken place, does not perceptibly influence the anaphylactic symptoms, and, finally, no definite evidence can be obtained regarding the function of the motor nerve endings in the bronchial muscles in anaphylaxis.

Auer (†, Sept. 1, 1910), thinking that the muscle of the finer bronchial tubes was an important factor in causing asphyxia in guinea pigs dying from immediate anaphylaxis, concluded that atropin ought to be a rational prophylactic agent (†). He accordingly examined this assumption more carefully. The changes in respiratory volume were recorded by connecting a pleural cannula with the intrathoracic space and a Marey tambour. Upon injecting serum into the jugular vein of a sensitized guinea pig anesthetized with ether and paralyzed with curarin it was found that there was a short

preliminary period of bronchial dilatation quickly followed by a decreased change of respiratory volume. If, however, 5 milligrams of atropin were injected into the jugular vein at the time when the first trace of diminished inspiratory volume was observed the lungs again recorded oscillatory changes showing that respiration was re-established. Likewise guinea pigs sensitized by subcutaneous injection of horse serum and injected either subcutaneously or intravenously with atropin before injecting the toxic dose of serum saved 72 per cent of the animals from immediate anaphylaxis.

I am of the opinion, however, that Auer's pigs as a whole were not as sensitive as the pigs used at the Hygienic Laboratory, since 25 per cent of the controls recovered. Auer's inference that Anderson and Schultz's results were due to lack of sufficient atropin in the circulation at the time when the serum was injected is not supported by Schultz's experiments with atropin sulphate, as will be shown in a separate communication on quantitative pharmacological studies with atropin sulphate. Auer recommends that 2 milligrams of atropin sulphate in a 1 per cent solution be injected into the external jugular vein 10 to 15 seconds before the toxic dose of horse serum. This is for medium-sized guinea pigs about 0.0066 milligram per gram body weight and but slightly below the lethal dose of atropin for guinea pigs. If, then, one must use such highly toxic doses of atropin in such a limited period of time as laid down in this article, of what practical use is it, and one is almost inclined also to ask what do experiments with just sublethal doses of such a powerful alkaloid prove anyway?

Auer, J. (<sup>8</sup>, Dec. 20, 1910), describes a series of experiments with the rabbit in which it is stated that if the influence of the central nervous system and of the abdominal blood vessels is removed a fall of blood pressure nevertheless results after injecting horse serum into the vein of a sensitized animal. This fall of blood pressure is thought to be due to failure of the heart because of inhibition or of paralysis.

Karsner and Nutt (<sup>21</sup>, Apr. 19, 1911) used guinea pigs averaging 400 grams in weight, sensitized subcutaneously by 0.05 c. c. of horse serum. The atropin was injected into the jugular vein five minutes before the toxic dose of horse serum and it was found that 0.060 gram of atropin injected into the jugular vein kills a 400-gram guinea pig almost instantly. It was also observed that as the toxic dose of horse serum is increased the protecting dose of atropin must also be increased, but the increase in protecting dose is not proportionate to that of the horse serum. The curve of protecting dose rises much more sharply than that of horse serum, and finally a point is reached where the animal succumbs to the dose of atropin. The effect of the atropin is physiological and not due to an alkaloidal combination with the toxic fraction of the horse serum, for if a mixture of atropin

and horse serum be incubated at 37° C., dialyzed four days, and then injected sensitized pigs die as if no atropin had been added to the serum, whereas the controls injected with the same mixture, not dialyzed, saved animals from anaphylactic death.

In experiments at the Hygienic Laboratory Schultz has shown that 0.1 milligram of atropin sulphate per gram pig, injected into the jugular vein, kills guinea pigs. Death is caused by failure of respiration. Such pigs, however, can be revived, at least temporarily, by artificial respiration.

Voegtlin and Bernheim (<sup>86</sup>, May 30, 1911) used an improved method of making an Eck fistula (<sup>11</sup>), and at the time of injecting the serum they also ligated the portal vein near the hilus of the liver and temporarily clamped the hepatic artery. By this means they were able to test the influence of the liver upon anaphylactic shock in animals under practically normal conditions. No hirudin or other toxic substance was necessary, since the liver cannula employed by Manwaring was not necessary. Some of the animals were sensitized before and others after the operation for the Eck fistula. No fall of blood pressure was ever observed at the time of the second injection of horse serum when the liver was excluded from the general circulation. In three dogs sensitized after the operation for the Eck fistula no shock developed at the time of the second injection of horse serum. In sensitized dogs in which the liver was first excluded from and later included in the general circulation no shock develops after the second injection of antigen if a certain period, say 5 to 10 minutes, elapsed between the time of injection and the releasing of the liver ligatures.

It is thought that the experiments conclusively demonstrate the fact that the liver is essential for the development of anaphylactic shock, since when the liver was excluded not the slightest fall in blood pressure was observed.

In my own work with guinea pigs and with cats I do not find that the liver or the intestines are necessary to obtain anaphylactic shock after a toxic dose of serum. Thus far not enough experiments have been done to prove conclusively that neither Manwaring nor Voegtlin and Bernheim's conclusions as to the dog are justified. It is well known that dogs do not give such clear-cut results in anaphylactic experiments as do certain other species. I have, however, obtained a fall of blood pressure in dogs with the liver and intestine circulation excluded. This fall in the few experiments tried was not so marked as in the intact animal. Just why will have to be discussed later when the details of the experiment are gone into.

With guinea pigs that are highly sensitized there is no doubt whatever that the liver and intestines are not essential to the production of anaphylactic shock. This animal after lessening the circulation area, by excluding the liver and intestinal circulation, reacts almost

more quickly to intrajugular injections of serum than does an intact animal. If 0.2 to 0.5 c. c. of horse serum be injected into the jugular vein of a highly sensitized animal, the liver and intestinal circulation being excluded, the lungs become immobilized and remain distended in less than two minutes. At the same time the heart becomes greatly distended with blood, it contracts with gradually decreasing force, the blood turns venous, after which the animal dies. The lungs after removal from the chest cavity remain distended and have much the same appearance as lungs from other pigs dying from anaphylactic shock. It would seem, therefore, that further work will have to be done before we can accept Manwaring's conclusions.

Schultz and Jordan (\*\*, February, 1911) made a histologic study of the lung of guinea pigs, mice, and other animals. Gross dissections, as well as microscopic sections, of normal animals were compared with similar preparations from animals killed with horse serum. It is thought by these writers that the cause of sudden anaphylactic death in guinea pigs is asphyxia, caused by occlusion of the secondary or tertiary bronchi, and that this occlusion is a result of the folding and dovetailing of the mucous membrane brought about by a tonic contraction of the smooth muscle of the larger bronchi. The lumina of the tertiary and smaller bronchi may be reduced, but this simply lessens the respiratory volume by increasing the resistance to the air. The walls of the smaller bronchi being relatively poor in mucous membrane, occlusion is therefore less apt to occur. The alveolæ, and their ducts and the bronchioles, were found in sections to be not only open, but distended, in the anaphylactic lung so that the whole lung volume is so increased as to fill the chest cavity. Edema was also observed in anaphylactic lungs, especially in the region of the bronchial tree. It is said that sensitized white mice showed many symptoms of anaphylaxis observed in guinea pigs, but death never resulted from asphyxia due to occlusion of the bronchial tubes as in guinea pigs. White mice, however, react to serum, showing an increased irritability of the skin, stimulation of the intestine and bladder, fall of body temperature, and a low blood pressure, along with changes in rate and force of respiratory movements. In white mice the smooth muscle is relatively well developed in the bronchi, but the mucous membrane is not; this, it is thought, may account for the absence of asphyxia. In the guinea pig there was also found a peculiar beaded structure of the pulmonary arteries; furthermore, physiological experiments showed a fall of blood pressure, overdilatation of the right heart, and an engorgement of the large veins with blood. These strong bands of arterial muscle are probably stimulated by the serum, contract, and by their occluding the lumina, in part or in whole, back up the blood on the venous side of the heart and lower the blood pressure in the systemic circulation.

## EXPERIMENTAL.

### A. THE REACTION OF EXCISED INTESTINE FROM MAMMALS TO HORSE SERUM.

After having tested segments of intestine from frogs, mice, cats, dogs, and guinea pigs it was found that all contract when small amounts of serum are brought in contact with them. These segments were suspended in oxygenated Ringer and tested in the manner described on page 43. The guinea pig's intestine, however, was found to be the best suited for the experiments herein described and was chosen as a representative tissue for comparing the relative reaction of different organs to serum and other proteins.

A freshly excised intestine, from a guinea pig under ether anesthesia or from an animal that has either been decapitated or asphyxiated, when suspended in oxygenated Ringer or in Howell's solution at 33° C., may or may not immediately show peristaltic movements. Sooner or later, however, peristaltic movements set in and are superimposed upon the slow but more or less prominent tonus waves. The latent period before the beginning of peristalsis varies with different muscles and with the temperature of the solution. Often a muscle that shows no sign of yielding automatic contractions at 33° C. may become very active at 38° C. With the higher temperatures, however, the muscle is apt to show marked tonus and become useless for testing the action of serum. A muscle that is quiescent and records a straight line may be just as irritable to serum as its companion that is recording small contractions. Usually, however, the active strips furnish the best test objects; especially is this true for segments removed from animals that have been dead for some time. (See fig. 16.) Muscle removed from the live animal or from animals before clotting sets in seems to give the best results, although I have secured excellent results with intestine not removed until the hind legs show signs of rigor mortis. Almost invariably when tissue was removed after the animal was no longer limp it not only failed to record automatic contractions, but it ceased to respond to two or three times the ordinary dose of serum.

When irritable muscle suspended in 10 c.c. of oxygenated Ringer is treated by running 1 c.c. of horse serum of the same temperature into the saline (5 or 10 seconds), the muscle quickly responds by

contracting. The contractile force of muscle from different guinea pigs of the same weight and apparently in the same condition varies somewhat but, as a rule, is fairly constant. Greater variation, as might be expected, exists in the contractile force of segments taken from widely different levels of gut of a given animal. So in making a comparative study of the contractile force of intestinal segments from individuals of the same species these variations must be considered.

As a rule the contraction excited by 1 c. c. of serum is about equivalent to the highest automatic tonus contraction of an untreated muscle, only the former is much more rapid. Furthermore, the serum stimulates the muscle to more vigorous peristalsis, these automatic contractions usually becoming very prominent after the tonus contraction. The primary tonus contraction excited by 1 c. c. of serum is seldom a maximum one. This can be shown by adding a second cubic centimeter of serum just before the muscle begins to relax, in which case, if it is not a maximum contraction, another contraction is summated upon the primary one.

Horse serum, then, is a strong stimulant for smooth muscle and acts in many respects not unlike small doses of alkali, such as ammonia, sodium hydroxide, and sodium carbonate, or as certain of the alkaloids like pilocarpin. In that it seems to act upon the receptive substance of the muscle cell it somewhat resembles barium chloride, but it differs not only quantitatively, but qualitatively, in its action, barium being a more powerful muscle stimulant and forming relatively much more stable compounds with the cell.

Excised intestinal muscle from different species reacts qualitatively much alike, but quantitatively quite differently. The intestine of the cat seems to be more sensitive than that of the dog and less sensitive than that of the guinea pig. The intestine of the mouse records a very rapid peristalsis when placed in a warm chamber containing an atmosphere of oxygen and water vapor. The peristalsis of this muscle in oxygenated Ringer at 36 to 39° C. is much more rapid than that of the cat. Its irritability toward horse serum, however, is less than that of the guinea pig. These observations seem to agree very well with the phenomena observed in these animals after they have received large intravenous or intraperitoneal injections of serum or of various proteins.

#### A. ACTION OF THE SERUM UPON THE INTESTINE OF INTACT ANIMAL.

As a rule normal nonsensitized guinea pigs are but slightly affected by one-half to 3 c. c. intravenous injections, but occasionally pigs react quite perceptibly to relatively large doses of serum. It is then that one observes more or less involuntary passage of feces. It is

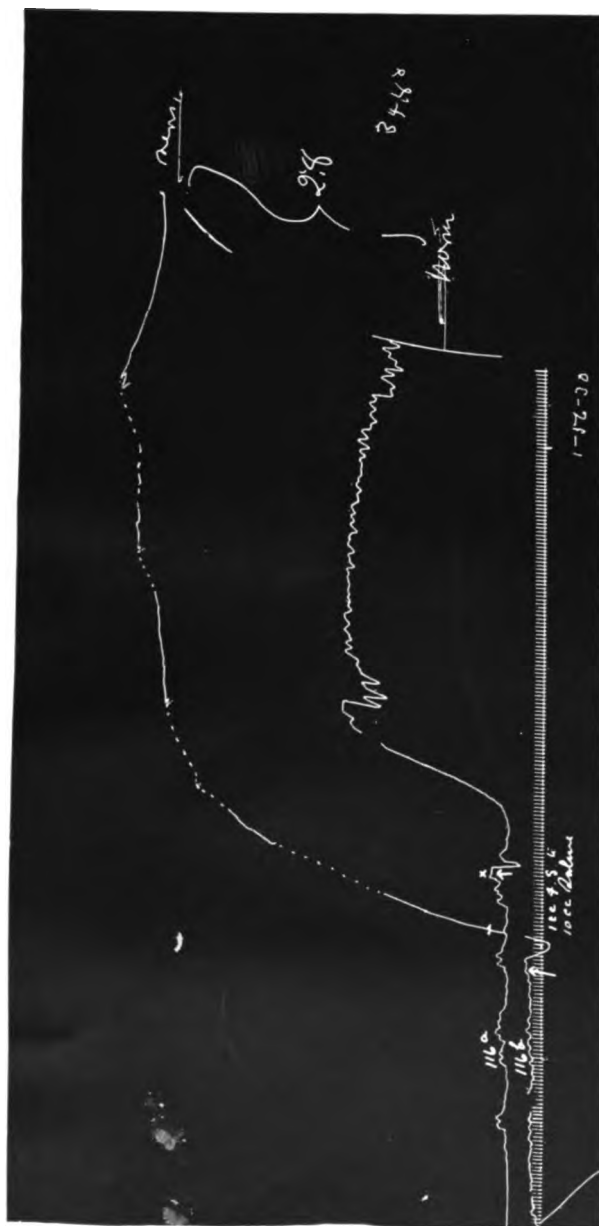


Fig. 1. SMALL INTESTINE FROM SENSITIZED AND FROM NONSENSITIZED GUINEA PIGS TREATED WITH HORSE SERUM.

Experiment 116, a and b, August 2, 1910. Myograms reduced to 0.028.

Record 116a.—Myogram of nonsensitized intestine. History as follows: Normal nonsensitized guinea pig. July 16, 1910, weight 270 grams; put in cage with sensitized animals. August 2, 1910, weight 320 grams. Ether anesthesia; 1.14 p. m., intestine tied off, excised, and stored in oxygenated Ringer; 1.17 p. m., ether off; 4.05 p. m., ether; cannula in left jugular vein; 4.11 p. m., ether off; 4.21 p. m., 0.8 c. horse serum into left jugular vein; 4.42 p. m., up to this time no anaphylactic symptoms; decapitated.

Record 116b.—Myogram of sensitized intestine. Pig's history as follows: July 16, 1910, weight 250 grams, sensitized by a subcutaneous injection of 0.1 c. of horse serum. August 2, 1910, weight 315 grams; ether anesthesia; — p. m., 150 to 200 cm. of intestine tied off, excised, and stored in oxygenated Ringer; 1.24 p. m., ether off; 3.55 p. m., ether again; cannula in left jugular vein; 4.01 p. m.,  $\frac{1}{2}$  c. serum; 4.02 p. m., spasm; 4.05 p. m., last gasp. Typical anaphylactic lungs.

Segments each 35 mm. long suspended 1.50 p. m. in 10 c. c. of oxygenated Ringer at 34.8° C. Ratio of lever arms of the light straw lever 30 mm. to 135 mm. Weight of 0.5 gram on writing arm 30 mm. from fulcrum.





FIG. II. REACTION OF BLADDER FROM GUINEA PIG SENSITIZED WITH HORSE SERUM.

Experiment 30, A<sup>1</sup> and A<sup>2</sup>, March 17, 1910.

March 1, 1910, weight 180 grams, sensitized by subcutaneous injection of horse serum. March 17, 1910, weight 250 grams; ether anesthesia; intestine and bladder removed. Bladder placed in oxygenated Ringer; after recovery from ether  $\frac{1}{2}$  c. horse serum injected into jugular vein; typical immediate response.

A<sup>1</sup>. Myogram of bladder 11:53 a. m., bladder suspended in 10 c. c. of oxygenated Ringer at 33.2° C. Lower record is of bladder after addition of 1 c. c. of horse serum added, being of the same temperature as the suspension solution. A<sup>2</sup>. Myogram of bladder; 12:14 p. m., 1 c. c. of horse serum added, being of the same temperature as the suspension solution. Myograms reduced to 0.028 of original. Levers same as described in legend to Figure I.

difficult to say positively from observation to what extent the longitudinal muscle of the intact gut is affected, but there is no mistake about serum causing contraction of the circular muscle.

In experiments with nonsensitized cats I have also observed involuntary defecation after injecting horse serum into the saphenus vein. A dose of serum, 0.0025 c. c. per gram of body weight, large enough to cause distinct symptoms of collapse, usually induces involuntary defecation. I am inclined to think that anemia of the central nervous system is not the chief factor responsible for the defecation. Just as in the case of guinea pigs the gut itself is directly stimulated, and while in the intact animal it may be a combination of factors, such as reflex nervous impulses, direct impulses from the central nervous system, interference with the normal mesenteric circulation or direct action of the serum upon the gut, yet in the light of experiments with the excised intestine the most important factor seems to be the direct stimulating action of the horse serum upon the muscle itself. As will be pointed out later, in nearly all animals highly sensitive to serum, or at least in dogs, cats, rabbits, guinea pigs, and mice, the intestinal peristalsis is greatly augmented, especially in cases of collapse. In such animals as can vomit the whole alimentary tract may be involved. These experiments are, then, of considerable interest in throwing light upon the symptoms sometimes observed in man after injecting antitoxins and other protein preparations.

#### B. THE REACTION OF EXCISED BLADDER FROM NORMAL GUINEA PIGS TO HORSE SERUM.

The bladder of guinea pigs, excised, cut, and suspended so that the most efficient fibers pull against the lever, records contractions somewhat resembling the intestines. When such a preparation is suspended in Ringer solution and finally treated with serum it is thrown into a tonus contraction, and upon this tonus curve smaller contractions of an irregular character are superimposed.

Similar contractions may be recorded with the excised organ by inserting into the bladder a balloon-like tambour, tying the cut margin of the excised organ about the tambour not unlike a sack slipped over a broom, the open end of the sack being tied to the handle. Such a tambour connected with a Marey or with a piston recorder will readily record the reaction of the bladder to serum when the organ is immersed in a proper saline bath.

From the observations made upon the intact animal it is not surprising that this organ should also react so readily to horse serum. Nonsensitized cats may involuntarily empty the bladder after having been injected with a dose of serum sufficiently large to cause

temporary collapse, and, as will be discussed more in detail later, sensitized dogs and guinea pigs almost invariably empty the bladder at a time corresponding to the period of low blood pressure. Just as with the intestine, various factors, usually accompanying a condition of partial asphyxia, might be suggested as the cause of the bladder's contraction. It is, however, more likely that the serum acts upon the smooth muscle itself, since the isolated muscle suspended in Ringer and then treated with serum contracts as in the intact animal. It is at least safe to say that direct action upon the muscle is the essential factor and that all other extraneous impulses are merely accessory agents. (See Fig. 2.)

#### C. THE REACTION OF EXCISED UTERUS OF A GUINEA PIG TO HORSE SERUM AND TO PEPTONE.

In this series of experiments the uterus horns were from animals used in other experiments; some from normal animals, others from animals that had been sensitized with horse serum. The animals before removing the uterus were either anesthetized with ether or were decapitated.

Immediately after death by decapitation or after anesthetization, the right and left horns were tied at the small end and another ligature tied around each horn at their junction, then excised, stored in oxygenated Ringer, and suspended as soon as possible in oxygenated Ringer kept at about 30° C. A higher temperature approximating that of the body is apt to throw the muscle into a permanent state of tonus or render the muscle too active for profitable study.

After the muscle has recorded several normal contractions, 1 cubic centimeter of horse serum added to the bath during the phase of relaxation causes the muscle to contract more completely than previously, also to take a much longer time to relaxing than before; but soon it does relax and then much more completely than before adding the serum. In this respect uterus muscle differs from intestinal muscle. The difference, however, is probably only apparent, for the uterus seems to possess more or less tonus when in Ringer solution. The serum, then, not only causes a more complete contraction but it causes a more complete relaxation, lessening the tendency to permanent tonus and exciting the muscle to greater peristalsis. (See Fig. 3.)

#### ACTION OF WITTE-PEPTONE AND PROTEINS.

Other proteins such as egg albumin, wheat protein, and organic extracts from animals, likewise cause the uterus to react thus. It is desired more especially, however, to mention the action of Witte-peptone.

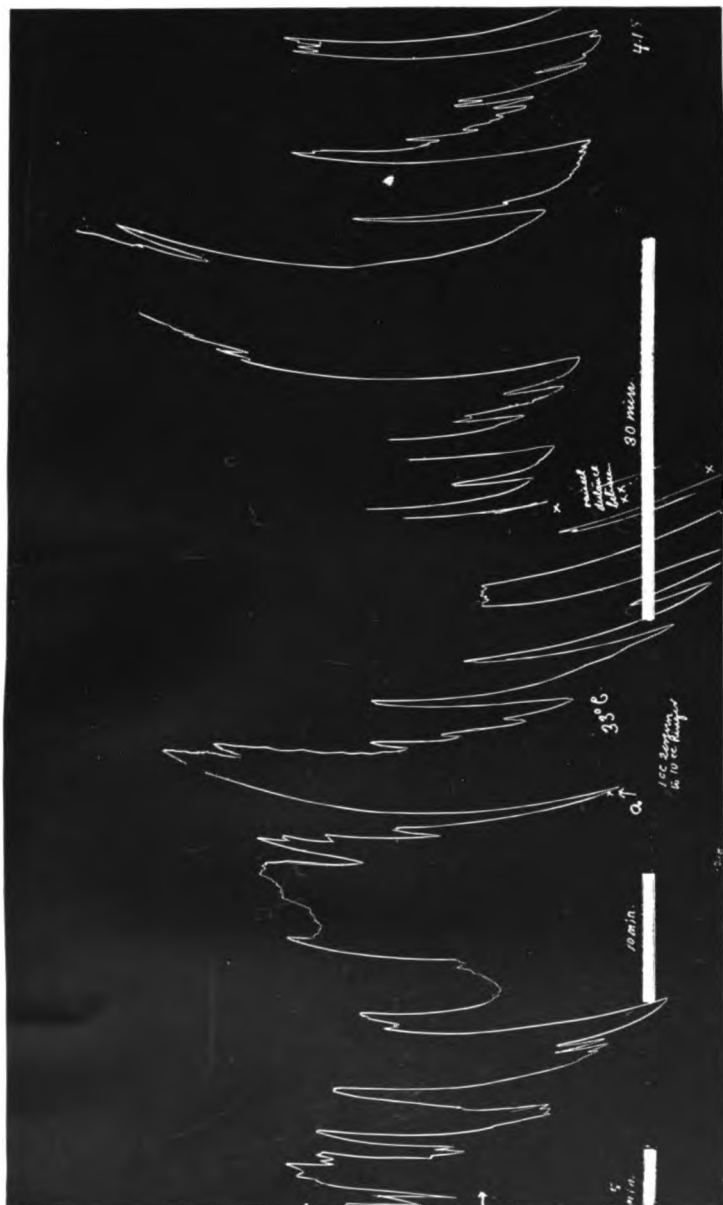


FIG. III. REACTION OF THE EXCISED UTERUS FROM A SENSITIZED GUINEA PIG TO HORSE SERUM.

Experiment 33, September 23, 1911, Myograms  $\times 0.025$ .

- a. One c. c. horse serum added to the suspension fluid; large contraction followed by correspondingly greater relaxation. zz, lever raised; contractility increased. June 26, 1911, sensitized by a subcutaneous injection of 0.05 c. c. horse serum. September 23, 1911, 2.08 p. m., decapitated, uterus tied off, excised, and stored in oxygenated Ringer; 2.25 p. m., suspended; lever same as described in legend to Figure I, except weight on lever arm heavier; 10 minute spaces marked with a Jaquet time marker.



Witte-peptone solution containing 0.05 gram of peptone to 1 c. c. of Ringer when added slowly to 10 or 15 c. c. of the suspension bath causes the uterus not only to contract more vigorously than before, but it causes the muscle to relax more slowly. In other words, there is a much greater tendency toward tonus contraction that is quite different from the results with an equal quantity of horse serum. With Witte-peptone the muscle almost shortens to a little round ball, pulling with considerable force, and makes a record like to that illustrated in figure 4. Witte-peptone is then a marked stimulant to uterine muscle. The reaction of peptone, then, seems to be quite general for smooth muscle, since the animal, weighing 500 grams, from which this muscle was taken, died suddenly after injecting 1 c. c. of the above-mentioned peptone solution into the left external jugular vein. The symptoms were typical of anaphylaxis, except that the lungs were redder and not so imperfectly inflated as in animals dying as suddenly from serum anaphylaxis.

#### D. BLOOD VESSELS.

A freshly excised thoracic aorta of the guinea pig was cut into segments, a segment split longitudinally and so suspended in oxygenated Ringer that the tension was in the direction of the circular muscle fibers, and as soon as possible serum was added to the suspension solution. Sometimes no action was recorded by such aorta rings, but some of the segments recorded a very slight contraction. At no time did I observe a relaxation of the muscle in response to serum. It is much easier to work with similar segments of dog's carotid, thoracic, or abdominal aorta, contractions, as a rule, being recorded by such preparations.

The veins are more difficult to work with, and when results are obtained the vena cava either records a contraction or fails to record a response to serum. There is some indication that the arterioles of various organs contract, but further experiments with excised structures must be made to be certain of this.

## 2. REACTION OF EXCISED TISSUES TO THE ANIMAL'S OWN BLOOD PROTEINS.

In the early history of perfusing excised organs it was observed that defibrinated blood from a different species was much more toxic to the tissues than was the animal's own defibrinated blood. Even the animal's own blood caused a diminished outflow so that after a time the organ ceased to function. It was little understood just why there should be such a diminished output, but by some it was thought to be due to clumping of the corpuscles and stopping up of the capillaries. Even now it is thought by some physiologists that fresh

defibrinated blood stops up the capillaries through the corpuscles and that the serum is a relatively inert substance. So far as I am aware no conclusive experiments have been made to show that clear serum and unclotted blood taken from the same animal react differently upon organs. A foreign serum does stimulate muscle; but does the animal's own defibrinated blood, its serum, or its native blood do so?

**A. THE REACTION OF EXCISED GUINEA-PIG INTESTINE TO DEFIBRINATED BLOOD FROM THE SAME ANIMAL.**

The guinea pig was anesthetized with ether, a segment of intestine tied off, excised, and suspended in oxygenated Ringer. The animal was then quickly bled, the blood defibrinated collected into a test tube, warmed to the temperature of the suspension bath and then added in varying amounts to the solution containing the segment. Naturally, the slightly soluble, washed fibrin is inactive, but 1 c. c. of the serum and suspended blood cells strongly stimulated both normal and sensitized muscle. The reaction of such a mixture resembles very much that of horse serum, being perhaps somewhat less stimulating. (Fig. 7.)

**B. THE ACTION OF SERUM FREE FROM CELLS.**

If serum be so collected that it is practically free from hematin and red cells, and then a muscle from the same animal tested in the manner described above, 1 c. c. of the serum causes a strong contraction that can not be distinguished from that caused by defibrinated blood containing everything in blood but the fibrin. (Fig. 6.)

**C. THE ACTION OF FRESHLY DRAWN BLOOD.**

In this series of experiments the guinea pigs were anesthetized and a cannula tied into the carotid artery. Two or three hundred centimeters of small intestine were tied off, excised, and stored in Ringer solution through which washed oxygen was slowly bubbling. Segments of intestine were then suspended in oxygenated Ringer at 38° C. The animal that had now recovered from ether was bled from a short cannula directly into the suspension bath so that 1 to 5 c. c. of blood dropped into the solution. This of course was quickly mixed with the suspension fluid by the slow but steady current of bubbles of oxygen that kept the solution in constant motion. No reaction of the muscle is noted until one or two minutes after adding the first drop of blood. Sometimes there is a slight inhibition upon the blood mixture coming in contact with the muscle, but if care is taken not to allow the muscle to remain too long in the Ringer before adding the blood and if the added blood and suspension fluids are at about the same temperature, the muscle reacts, first slightly; soon,

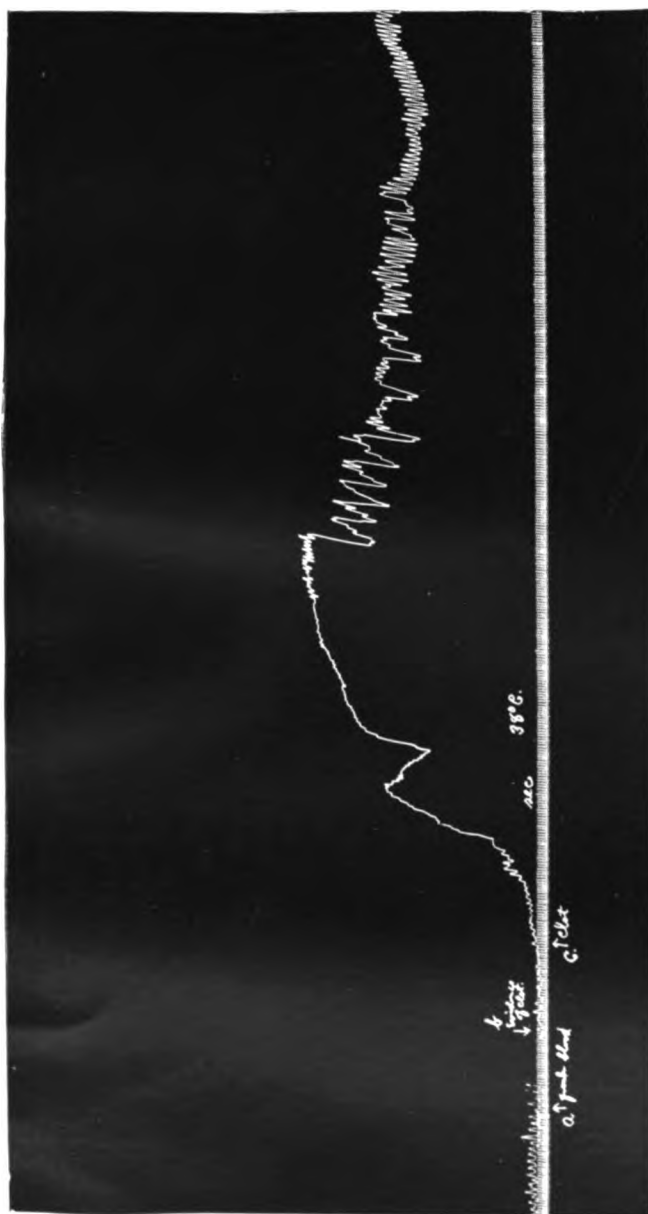


FIG. V. REACTION OF EXCISED INTESTINE OF GUINEA PIG TO ITS OWN BLOOD.

Experiment 36, September 24, 1911. Myogram X 0.025.

- a. Animal bled from carotid cannula, the blood dropping into the suspension fluid and mixed thoroughly by the bubbles of oxygen passing through it.  
 b. Blood seems to have started to clot.  
 c. Unmistakable coagulum visible, serum froth clear, and soon the bubbles of oxygen changed their course. The segment when finally removed was surrounded by a large clot of blood.  
 Guinea pig nonsensitized; weight 560 grams. 11.15 a. m., ether anesthesia; 11.30 a. m., intestine tied off, excised, and stored in oxygenated Ringer; ether cone removed; 11.45 a. m., 35 min. segments of intestine suspended in oxygenated Ringer at 38° C.; after recovery from ether the segments were tested as indicated in a. This animal was finally killed by injecting 0.5 c. c. of Witte-peptone into the external jugular vein. Lever same as described in legend to Figure I.



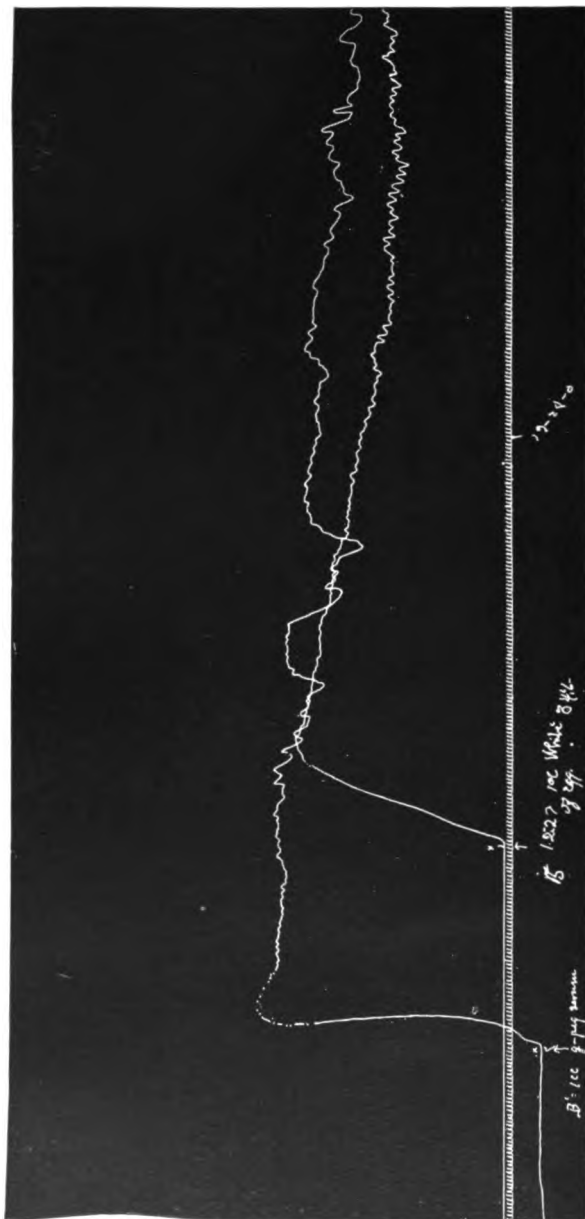


FIG. VI. SMALL INTESTINE FROM GUINEA PIG, TREATED WITH GUINEA PIG SERUM OR WITH WHITE OF EGG.

Experiment 39, B1 and B2, April 9, 1911.

Normal nonsensitized guinea pig decapitated, small intestine removed, and placed in a cylinder containing Howell's solution (20° C.), through which washed O<sub>2</sub> was slowly bubbling. Serum collected from normal guinea pig April 8, 1911, and kept in ice chest. White of egg from fresh hen's egg, strained through silk boiling cloth. Segments 25 to 26 mm. long, suspended 11.36 a. m. in 10 c. of oxygenated Howell's solution at 34.6° C.

B1. Myogram from segment treated with 1 c. c. of guinea pig's serum (34.6° C.) 12.26 p. m. Lever pointing anti-clockwise to drum.

B2. Myogram from segment treated with 1 c. c. of egg white (34.6° C.) 12.27 p. m.

Myograms reduced to 0.831 original. Levers same as described in legend to Figure I.

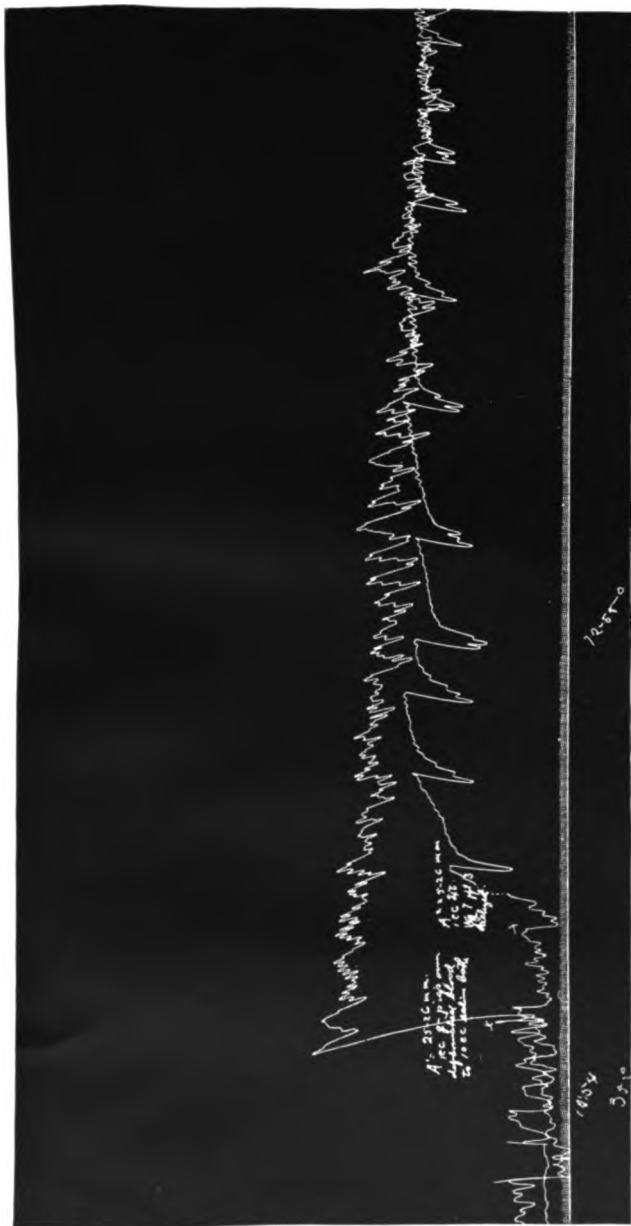


FIG. VII. SMALL INTESTINE FROM NONSENSITIZED GUINEA PIG TREATED WITH WHEAT-PROTEIN AND WITH DEFIBRINATED BLOOD FROM SAME ANIMAL.

Experiment 48, May 3, 1910, normal guinea pig weighing 280 grams.

Decapitated about 11 a. m. The blood collected, defibrinated, and warmed in the water bath along with the suspension solution. (See segment A.) The intestine was removed and placed in oxygenated Howell's solution at room temperature. Segments A' and A'', 25 to 35 mm. long suspended 12.45 p. m. in 10 c. c. of oxygenated Howell's solution at 35.2° C.

A'. Myogram of segment treated with 1 c. c. of guinea pig's own defibrinated blood at 35.2° C. Lever pointing anti-clockwise.

A''. Myogram of segment treated with 1 c. c. of dialyzed ammonium sulphate precipitate of wheat-germ extract. (See p. 37.) Lever pointing clockwise.

Myograms reduced to 0.025 original. Levers same as described in legend to Figure I.



however, the muscle begins to contract as if treated with serum. If the suspension fluid be watched it will be found that the contraction begins to record itself at about the time the first signs of clotting of the added blood is observed. When a clot is plainly visible, and the froth assumes the character of serum froth, the muscle, as said above, reacts vigorously as if treated with a foreign protein. The small amount of ether that may possibly be in the blood does not seem to be the cause of the neutral action of the blood, for blood from animals that had no ether reacted in much the same way.

Normal unclotted blood is, then, almost a neutral carrier while the serum of clotted blood is a cellular irritant and acts much like a foreign protein. This is of more general interest than might at first be supposed. As will be pointed out in a later article, serum plays an important part in stopping the flow of blood during hemorrhage, it may also play an important part by reason of its irritant action in certain forms of autointoxication accompanied by internal hemorrhages.

### 3. THE REACTION OF EXCISED INTESTINE FROM A GUINEA PIG TO THE PROTEINS IN WHITE OF EGG.

As is well known, man, guinea pigs, and other animals can be rendered highly sensitive to white of egg. It is quite conceivable, therefore, that smooth muscle from both nonsensitized and from sensitized animals could be strongly stimulated by this mixture of proteins. No work so far as I am aware has been done to show that such proteins do act upon muscle. This series of experiments was undertaken not only to throw some light upon the action of this particular group of proteins upon smooth muscle but also to throw some light upon anaphylaxis experiments to be described in the second part of this bulletin.

Normal guinea pigs were decapitated, the small intestine tied off, excised, and stored in oxygenated Ringer at room temperature. Segments of the intestine were then suspended in the muscle chamber containing oxygenated Ringer at 33 to 35° C. and such segments were then tested with crude white of egg or with crystallized egg white, both from fresh eggs.

#### CRUDE WHITE OF EGG.

In this series of experiments the eggs were broken, the white separated from the yolk just before using. The white was passed through fine silk bolting cloth into a test tube and warmed in a water bath at the temperature of the muscles in the suspension fluid. One c. c. of this white of egg added to this suspension fluid caused the muscle to contract much in the same manner as does horse serum, guinea-pig serum, and other proteins. (See Fig. 6.)

### DENATURIZED WHITE OF EGG.

White of egg precipitated with magnesium sulphate, dialyzed, and dissolved in water or in weak sodium hydroxide, also causes intestinal muscle to contract. If, however, crystallized egg white (Hopkins) be dissolved in water or in salt solution the muscle either relaxes or does not contract. This I attribute to the influence of the acid retained by the protein during the crystallizing stage, though none could be detected by litmus; or possibly to the solution being too dilute. At any rate, the particular samples of crystallized egg white at my disposal did not cause the muscle to contract.

### REACTION OF THE INTACT ANIMAL TO EGG WHITE.

Although the reaction of this mixture of proteins will be discussed more in detail later, it is of interest to mention in this connection that strained white of egg may be highly toxic to guinea pigs, cats, and other animals when injected into the circulation.

Some of the guinea pigs died suddenly; others recovered, but eventually were completely paralyzed in the posterior part of the body, losing all use of the hind legs. Cats injected with relatively large doses often die suddenly from heart failure. It is well known that rabbits often die even when fed raw white of eggs, showing signs of anaphylaxis; and man is often found to possess a remarkable degree of either natural or acquired susceptibility to raw white of egg. All symptoms point to a cellular reaction involving to a large extent smooth muscle throughout the body.

### 4. REACTION OF THE EXCISED INTESTINE FROM NORMAL GUINEA PIGS TO EDESTIN.

Edestin, like most other neutral proteins, when dissolved in water or Ringer solution stimulates smooth muscle. A solution of edestin in weak alkali causes the muscle to contract. On the whole, however, experiments with this particular protein are not very satisfactory: (1) Because alkali must be used to obtain solutions strong enough to be physiologically active and very small traces of alkali act as a powerful stimulant to intestinal muscle; (2) edestin dissolved in N/20 NaOH in such concentration as to be active when added to the Ringer solution, in which the test object is suspended, precipitates out so that only a small amount of edestin is capable of diffusing into the muscle cells.

There is nevertheless evidence that weak saline solutions of edestin also cause smooth muscle to contract. One is then safe in concluding that aside from the possible alkali effect the protein still retained in solution acts as an irritant to smooth muscle.



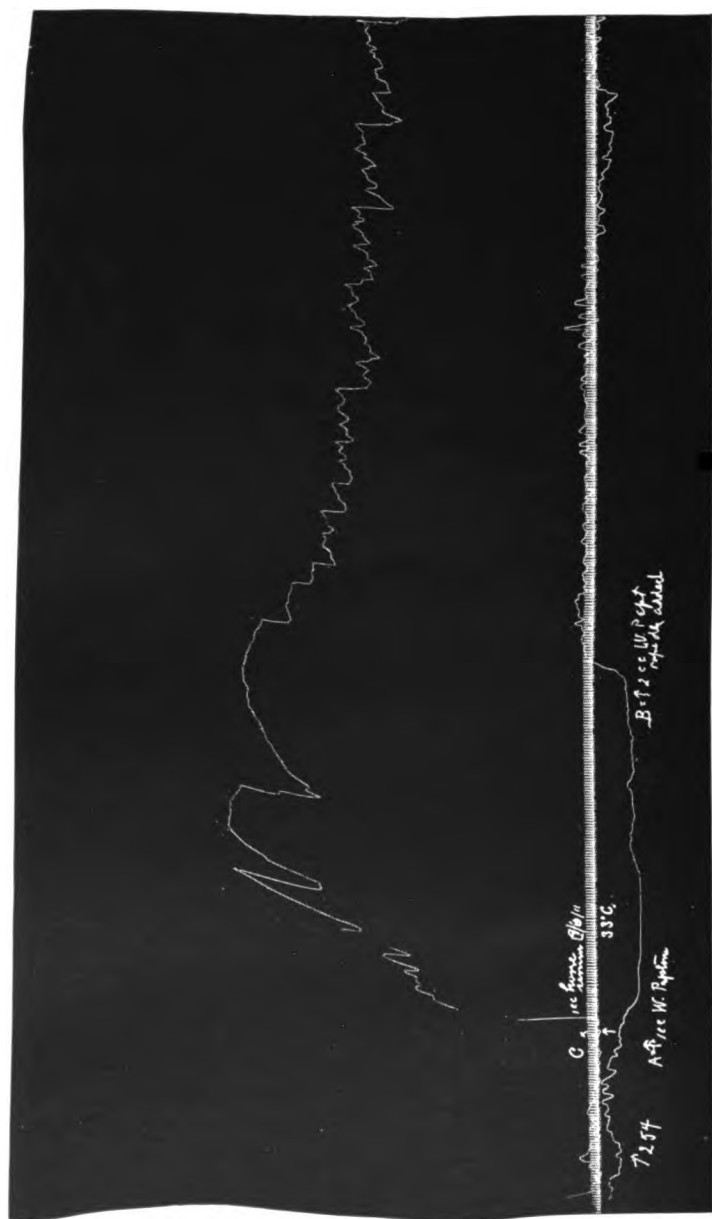


FIG. VIII. REACTION OF EXCISED GUINEA PIG'S INTESTINE TO DILUTE SOLUTIONS OF WITTE-PEPTONE.

Experiment 32, September 22, 1911. Myograms  $\times 0.621$ .

a. Myogram showing inhibiting action of Witte-peptone when added slowly.

b. Shows the effect of 2 c. c. added rapidly, which action, however, is slight.

c. The same muscle a few minutes later after adding 1 c. c. of horse serum at same rate as peptone (a). Guinea pig history: June 26, 1911, weight 331 grams, cannitized by subcutaneous injection of 0.08 c. c. of horse serum. September 22, 1911, weight, 540 grams, 1.15 p. m., 1 c. c. "autumnisticon" injected into left jugular vein, causing transient asphyxia; 2 p. m., decapitated; 2.04 p. m., intestine removed, and stored in oxygenated Ringer, 2.31 p. m., 30 min. segment suspended in 10 c. c. of oxygenated Ringer at 33° C. Lavers, see legend Figure I.

## 5. REACTION OF EXCISED INTESTINE TO EXTRACT OF WHEAT GERM.

Extract of wheat germ, unless it is too acid, also causes smooth muscle to contract, as is illustrated by the following experiment. Four hundred grams of Pillsbury's best wheat cereal was added to 2,000 c. c. of  $H_2O$  at room temperature; 24 hours later the extract was filtered. The almost clear extract has a wheaty odor and is slightly acid to litmus. Fifty grams of  $(NH_4)_2SO_4$  crystals were added to 100 c. c. of the extract, the precipitate collected upon a filter, dissolved in a minimum amount of distilled water, and dialyzed in collodian sacs against running  $H_2O$  for four days. One c. c. of the dialyzed protein causes a contraction of the intestine as does defibrinated guinea pig's blood. Furthermore, the muscle remains contracted for a long time—in this particular experiment at least one hour and 18 minutes—and probably would have remained in tonus even longer had not the segments been removed. (See Fig. 7A<sup>2</sup>.)

The fresh extract, before it becomes acid, also causes muscle to contract. It, however, is not so active as animal proteins. This is confirmed by its action upon the intact sensitized and nonsensitized animal, and, as will be shown later, can easily be demonstrated by its action upon the heart and blood vessels.

## 6. THE REACTION OF EXCISED INTESTINE FROM GUINEA PIG TO WITTE-PEPTONE.

One hundred milligrams of Witte-peptone was weighed into a graduated cylinder and Ringer solution added to the 20 c. c. mark. The peptone upon dissolving leaves behind a small amount of flocculent precipitate that settles. The clear solution was decanted off and tested. Its reaction as indicated by litmus and phenolphthalein was not alkaline, nor did it change blue litmus. As indicated by the muscle test it was either not exactly neutral or it contained an epinephrin-like substance, for dilute solutions reacted with muscle more like a solution of protein containing acid not detectable with litmus.

If 1 cubic centimeter of the clear solution be added slowly to 10 cubic centimeters of the suspension bath the muscle may relax just a trifle or its peristaltic movements be temporarily inhibited. Some minutes later the muscle may show a slightly increased tonus and peristalsis. Two cubic centimeters of the clear peptone solution added quickly usually reacts more like a typical protein, the muscle's tonus is increased, and the peristaltic movements augmented. (See fig. 8.)

If a slight amount of N/20 NaOH be added to the above peptone solution its reaction more closely resembles that of horse serum. Controls with Ringer containing an equivalent amount of alkali



when added to the suspension bath also cause the muscle to contract, but the response to alkali and protein is always greater than with the alkali alone, providing doses that excite only submaximum contractions be used. Smooth muscle, then, is a very delicate test for acids and alkalies absorbed or weakly combined with proteins. In another series of experiments a much stronger solution of peptone was used. Five grams of Witte-peptone was weighed into a graduated cylinder and enough Ringer solution added to make 20 c. c. of solution. The syrup-like mixture was not perfectly clear, but no particles could be seen suspended, and when 1 c. c. of it was added to 10 c. c. of Ringer the resulting fluid was cloudy with suspended particles.

If a fresh intestinal segment from a guinea pig sensitized with horse serum be suspended in 10 c. c. of Ringer at 33° C. and 1 c. c. of the strong solution of Witte-peptone added slowly the muscle contracts vigorously (see fig. 9); increased peristalsis may also result and be superimposed upon the tonus contraction. The tonus contraction is usually much more persistent after peptone than after horse serum, but if by chance the muscle relaxes soon enough a second contraction, usually much less in extent than the one after peptone, may result. If the muscle, however, be first treated with 1 c. c. of horse serum it soon relaxes. After a strong tonus contraction 1 c. c. of the strong Witte-peptone solution will stimulate such a muscle to contract with about the same force as serum. The tonus contraction is, however, much more persistent, lasting for many minutes, and superimposed upon the tonus contraction one usually observes greatly increased peristaltic contractions.

A solution of Witte-peptone, then, that contains from an equivalent to two times the equivalent amount of dry protein, found in an equal volume of horse serum, stimulates smooth muscle at least as strongly as does horse serum, and perhaps, judged from the intact animal, even more so. Though I desire to discuss the action of Witte-peptone upon the intact animal more in detail later, it may be mentioned at this time that one-half cubic centimeter of the strong solution of Witte-peptone injected into the jugular vein of a 280-gram guinea pig causes very grave symptoms and may cause death. The symptoms resemble those of an animal suffering from anaphylactic shock. The heart and lungs seem to be chiefly affected, the smooth muscle of both the bronchi and of the pulmonary arterioles are affected, the contraction of one set of muscles resulting in a greatly increased resistance in the air passages and of the other set in a greatly increased resistance in the pulmonary circulation, and naturally a fall of blood pressure in the peripheral systemic circulation.

In the intact animal, however, one must, when injecting intravenously such strong solutions, allow for possible obstruction of the capil-



FIG. IX. SMALL INTESTINE FROM GUINEA PIG SENSITIZED BY HORSE SERUM AND TREATED WITH A CONCENTRATED SOLUTION OF WITTE-PEPTONE.

- A. Myogram showing stimulating action of 1 c. c. of horse serum when added to 10 c. c. of Ringer in which a 35 mm. segment of intestine from a guinea pig sensitized by horse serum was suspended.
- B. Myogram showing stimulating action of a fresh solution of Witte-peptone solution, 250 milligrams of peptone to 1 c. c. of Ringer, added to the serum-Ringer bath of A. This myogram was made by the same segment used for A without changing the bath. A fresh segment from the same animal without preliminary treatment with horse serum contracted in much the same manner, yielding a slightly greater contraction.

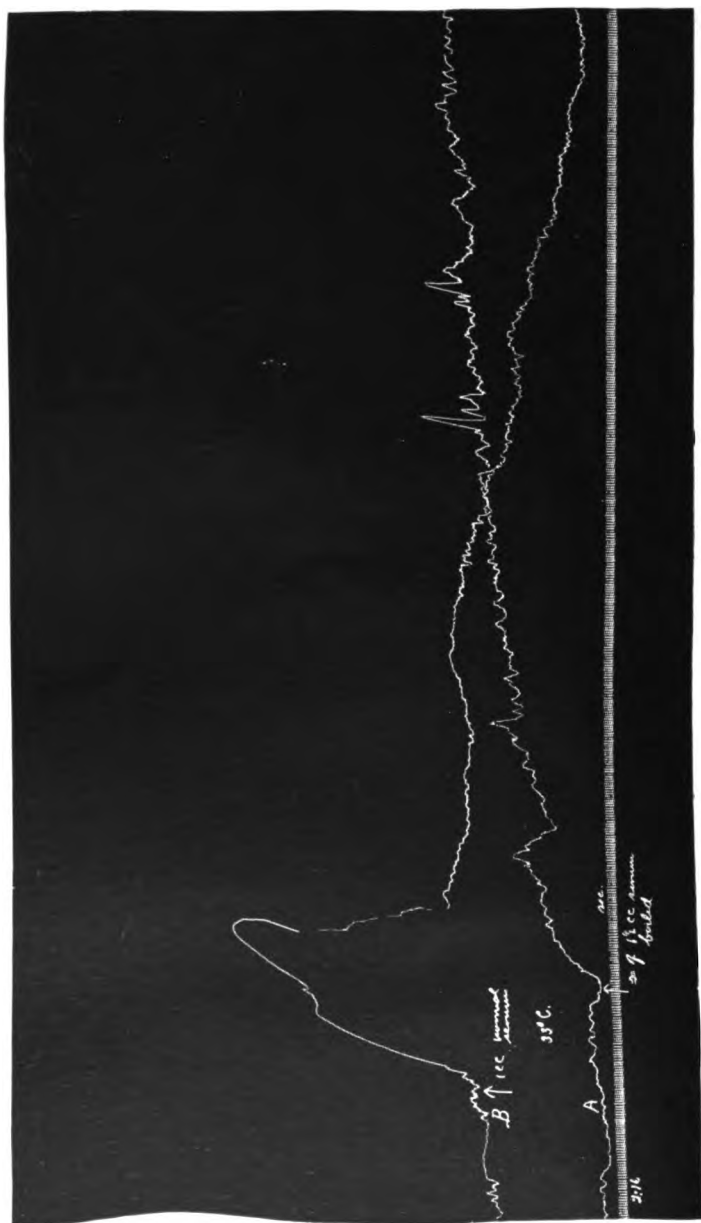


FIG. X. REACTION OF EXCISED INTESTINE OF GUINEA PIG TO BOILED AND UNBOILED SERUM.

a. Myogram of 35 mm. segment from nonsensitized animal, treated with 1½ c. c. boiled horse serum. 1 c. c. serum to 1 c. c. of H<sub>2</sub>O then boiled.  
 b. Segment (a) after the above treatment, 1 c. c. normal serum added.

laries by precipitated proteins. Nevertheless, in spite of such possible obstruction, experiments with excised muscle proves conclusively that solutions of peptones and of many other proteins stimulate smooth muscle to contract.

## 7. ACTION OF HEATED PROTEIN UPON INTESTINAL SEGMENTS.

### A. GENERAL.

It has been shown by different investigators that horse serum can be so altered by heating or by hydrolizing that its sensitizing and poisoning properties are greatly lessened. Rosenau and Anderson (1906, <sup>30</sup>) showed that horse serum could be heated at 60° C. for six hours without altering to any marked extent its toxic action; when heated at 100° C. for 15 minutes the toxic substance was entirely destroyed. They also found (1908) that horse serum, milk, and egg white, if dried, could be heated at 170° for 10 minutes without any appreciable influence upon the sensitizing property. Normal horse serum, heated at 70° for one hour, loses very little of its toxic property, but at 80° one hour's heating does affect the toxicity slightly, and one hour's exposure to 100° C. seems to cause almost complete loss of toxicity, though not of the property of sensitizing guinea pigs. They believe the change to be gradual, increasing as the temperature is raised, and that the difference in the influence of heat upon the sensitizing and poisoning properties of horse serum is more apparent than real, since exceedingly minute amounts of serum are sufficient to sensitize animals and relatively large doses of serum are necessary to cause death.

Wells (1908, <sup>36</sup>) also made a careful study of the effect of heat upon the sensitizing and poisoning properties of protein. He found that crystallized egg albumin in large doses does not entirely lose its sensitizing power when heated in aqueous solutions to 100° for 15 minutes. Heating to 90°, however, nearly destroys its intoxicating effects. Increasing the coarseness of the coagulated particles by addition of acetic acid seems to increase somewhat the effect of heating. He thinks that probably the destruction or reduction of toxicity of proteins by heat is due to the change in solubility of the proteins. "Coagulation with alcohol destroys or reduces greatly the toxicity of proteins, which it renders insoluble in water (egg albumin), but not of proteins which it does not render insoluble (serum albumin)."

It seems to be the consensus of opinion that the action of heat in modifying the anaphylactic action of proteins resides primarily in rendering the substances insoluble. Should the temperature be high enough to hydrolyze the protein, then both the toxic and sensitizing properties would be altered by reason of the chemical changes that

would result, since Wells (<sup>36</sup>) has shown that persistent tryptic digestion for 59 days or longer finally lessens the sensitizing properties and almost destroys the poisoning action of the second injection.

#### B. EXPERIMENTAL.

It is possible to lessen greatly the stimulating action of serum upon muscle by heating. The solid coagulum of whole serum finely divided and mixed with Ringer is relatively inactive, as is illustrated by the following experiments:

One cubic centimeter of horse serum was heated in a boiling water bath for 10 to 15 minutes, then broken up into a pulp mixed with 1 to 2 c. c. of Ringer and warmed to the temperature of muscle. This mixture when added to the suspension bath slowly (about 20 seconds) either does not cause the muscle to contract at all or it stimulates it but weakly. In other words, it acts like a weak solution of unheated serum. Figures 10 and 11, respectively, illustrate the difference in the action of unheated and heated serum. The one shows its action upon nonsensitized and the other its action upon sensitized muscle. The main difference in the myograms obtained after treating the muscles with boiled serum is that the sensitized muscle responds more quickly; the degree of contractility seems to be about the same. With normal serum, however, there is the usual difference between the reaction of sensitized and that of nonsensitized muscle; that is, the contractility is greater in the former.

By diluting 1 c. c. of normal horse serum with an equal quantity of distilled water some samples of horse serum by keeping the water content the same may be heated without forming a large amount of solid coagulum, the coagulated protein being suspended in very small particles and giving the solution an opalescent appearance. Such a mixture usually, though not always, causes a considerable contraction in intestines from both normal and sensitized guinea pigs, the contraction of the sensitized muscle, treated with diluted serum boiled, being almost invariably less than that of the sensitized muscle treated with normal serum. The segments of intestine from nonsensitized pigs treated with this mixture reacted, as a rule, less than the segments from sensitized pigs. The contractions of sensitized segments responded by this treatment about to the same extent as did nonsensitized segments to the normal, pure horse serum.

In one experiment 5 c. c. of serum plus 5 c. c. of  $H_2O$  was heated four to six hours over a boiling water bath, the 200 c. c. container being connected with a reflux condenser. The amount of moisture, however, that condensed on the sides of the apparatus was of such quantity that the serum separated into two parts—one a clear liquid (*a*), the other (*b*) a solid coagulum. The two were separated; (*b*) was broken up into a fine pulp, collected on a filter, washed first

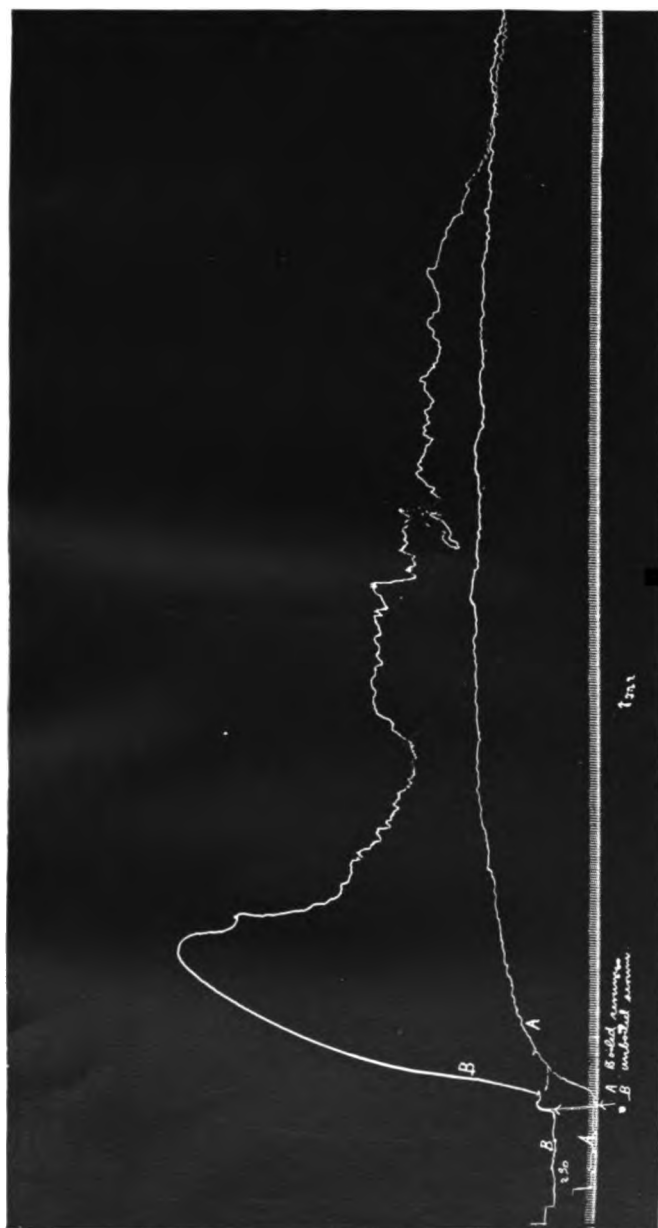


FIG. XI. REACTION OF EXCISED INTESTINE FROM GUINEA PIG SENSITIZED WITH HORSE SERUM.

- a. Myogram showing stimulating action of boiled horse serum, 1 c.c. serum to 1 c.c. H<sub>2</sub>O boiled, June 26, 1911, sensitized with 0.05 c.c. horse serum, September 12, 1911, 10.30 a. m., intestine removed under ether; 10.38 a. m.,  $\frac{1}{4}$  c.c. serum injected into jugular vein, 10.43 last respiratory gasp.
- b. Myogram of same segment some minutes later, an equivalent amount of normal serum added.

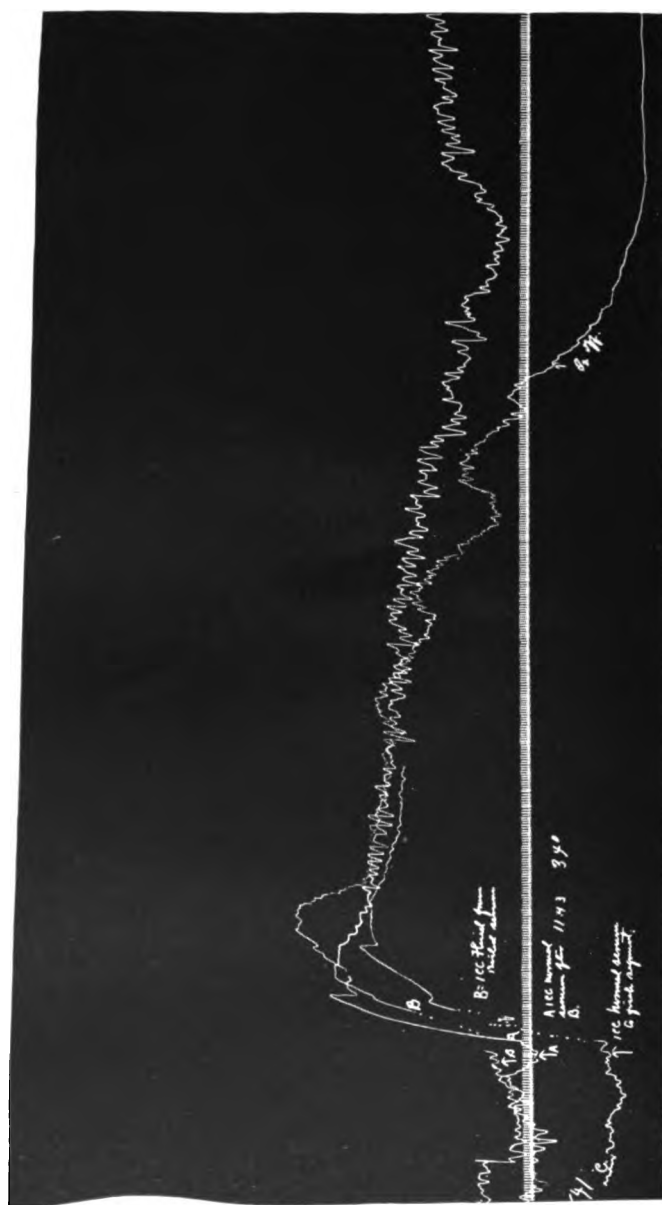


Fig. XII. REACTION OF EXCISED INTESTINE FROM A SENSITIZED GUINEA PIG TREATED WITH BOILED AND UNBOILED HORSE SERUM.

- a. Myogram made some minutes later by the same segment used for (b). 1 c. of unboiled serum causes a second contraction, which, as is usually the case, is less in extent than a fresh segment treated for the first time. If the suspension bath is changed and the muscle washed free from protein usually a larger contraction may be obtained.
- b. Myogram of 25 mm. segment treated with 1 c. of fluid (a) collected after heating 50 per cent water solution of horse serum in a reflux condenser 3 to 4 hours.
- c. Myogram of a normal untreated muscle after adding 1 c. of serum. Contractile force greater than that excited in (a) and (b).

with Ringer solution, then thoroughly with distilled water. This washed coagulum was then collected into a test tube, Ringer solution added, and warmed to the temperature of the suspended muscle. The activity of liquid (*a*) and of the coagulum (*b*) was then tested. (See figs. 12 and 13.) The equivalent of 1 c. c. of the original protein solution when added slowly to 10 c. c. of suspension bath usually causes a slow and weak contraction of smooth muscle, or it apparently does not affect some muscle preparations. Larger amounts of the mixtures, when added rapidly so that considerable of it comes suddenly into contact with the muscle, may cause a rapid contraction of about one-half the magnitude of that recorded by a control muscle treated slowly with an equivalent amount of unheated but dilute serum. (See fig. 12.)

Serum that has been still further diluted, say 1 c. c. of serum to 2 c. c. of  $H_2O$ , and boiled for short periods of time, seem to excite muscle to greater contractility than does the less dilute serum.

If 5 c. c. of serum be measured into a 200 c. c. flask, 10 c. c. of distilled water added, the flask connected with a reflux condenser, and the protein solution heated in a boiling water bath for four hours, the milky white liquid is still active. One cubic centimeter of such a solution added to 10 c. c. of the suspension fluid causes the muscle to contract slowly, but nothing like the normal serum does. Figure 13 is a good illustration of how 1 c. c. of such diluted and boiled serum acts upon muscle. When added at the same rate as the unboiled but diluted serum, the increase in tonus is very gradual, and there is also an increase in the strength of the peristaltic movements. By adding the boiled serum more rapidly, it is possible to develop the tonus contraction much more quickly and even to develop a greater contractile force. I am inclined to attribute this greater response of the more diluted samples to two factors: (1) Some of the protein passes into solution, and that portion of the protein incoagulable by heat (perhaps 10 per cent) is not absorbed so completely upon the colloid passing into the gel state; hence there is in the solution sufficient dissolved protein to stimulate the muscle. (2) The water used in making the dilution changes the osmotic pressure of the saline bath, and thereby slightly stimulates the muscle. These results then agree in general with those described by earlier investigators for the intact animal, since factors that modify the toxic action of serum for sensitized guinea pigs likewise modify the pharmacological action of serum upon excised smooth muscle. There seem to be substances with a similar action in all forms of tissue, the activity of which is not destroyed by boiling. Certain glands contain substances that have more or less of a specific action upon smooth muscle, depending apparently upon the muscle's innervation.



For example, that of the adrenal gland, the active principle of which inhibits the contractility of intestinal muscle, whereas serum stimulates it. Certain of the lecithin salts, such as choline and some of its homologues, are not only known to exist in the body fluids and in extracts of tissues, but some of them have a strong stimulating action upon nonatropinized smooth muscle. The fact, however, that when serum is coagulated it loses most of its stimulating action seems to indicate that the more complex portion of the protein compounds thrown down in the coagulum are the substances primarily responsible for the action of serum upon smooth muscle. This part of the subject will be developed more at length in a subsequent paper.

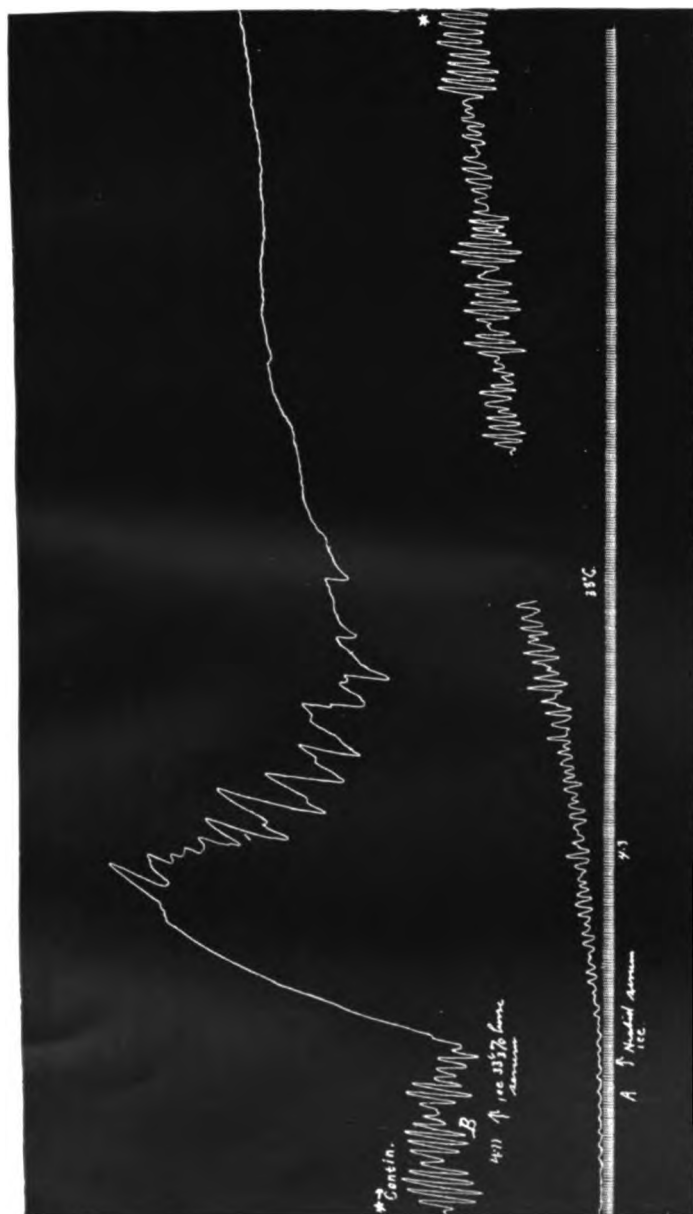


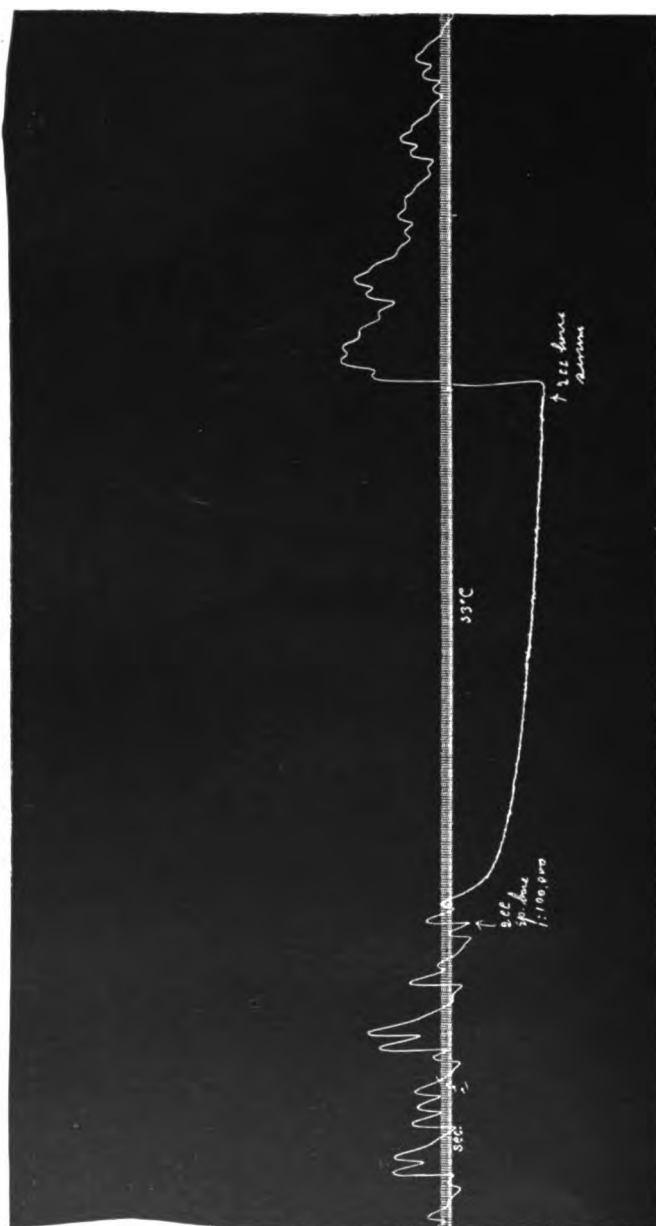
FIG. XIII. REACTION OF EXCISED INTESTINE FROM A SENSITIZED GUINEA PIG TO BOILED AND UNBOILED SERUM.

Experiment 32, September 22, 1911. Myogram X 0.625.

a. Myogram of 35 mm. segment after adding 1 c. c. of 33 per cent solution of serum in  $H_2O$ , boiled four hours in a 200 c. c. flask connected with a reflux condenser.

b. Myogram of same segment (a) some minutes later after treatment with 1 c. c. of 33 per cent serum unboiled. \* Indicates continuation of record (a) without changing lever.

June 26, 1911, weight guinea pig 331 grams, sensitized by subcutaneous injection of 0.05 c. c. of horse serum. September 20, 1911, weight 500 grams; 2 p. m. decapitated; 2.06 intestine tied off, excised, and stored in oxygenated Ringer; 2.38 p. m. 35 mm. segment suspended in 10 c. c. of oxygenated Ringer at  $33^{\circ} C$ ; 4.03 p. m. tested with serum.



**A. Inhibition of contractions after adding 1 c. c. of a 1 to 100,000 solution of epinephrin base to 10 c. c. of the suspension fluid.**

B. Stimulation caused by adding 2 c. c. of horse serum to the above Ringer-epinephrin suspension fluid. The cat's own serum will do much the same thing.

Intestine removed from cat while under urethane-chloral anesthesia (along with ether as needed). Longitudinal muscle suspended according to Magnus in oxygenated Ringer. The epinephrin solution contained no acid and was slightly colored, but nearly of the concentration indicated.

## B. THE REACTION OF TISSUES FROM GUINEA PIGS SENSITIZED WITH HORSE SERUM.

The physiologist who has watched the reaction of highly sensitized guinea pigs to serum, the bronchial spasm, intestinal movements, and the emptying of the bladder can not but be impressed with the idea that smooth muscle plays an important part in producing the visible symptoms of immediate anaphylaxis; and if it be his good fortune to test a sample of smooth muscle from some one organ the results emphasize more and more the importance of this tissue in serum anaphylaxis. As already pointed out, indirect proof has been offered by Auer and Lewis <sup>(10)</sup>, Anderson and Schultz <sup>(3)</sup>, later by Biedl and Kraus <sup>(13)</sup>, and in a more detailed and specific manner by Schultz and Jordan <sup>(14)</sup>, to show that smooth muscle caused asphyxia in guinea pigs by contracting and closing the air passages, acting like little valves, in response to the stimulating action of serum. If, then, guinea pigs that have received a single small injection of protein develop after a time such a remarkable degree of sensitiveness toward the same protein, as indicated by the symptoms of anaphylactic shock, it ought to be possible to demonstrate that tissue other than that found in the lungs may develop a hyperirritability toward serum after sensitization. It seemed that smooth muscle from various organs might be very well adapted to prove this supposition. The first requisite, however, is to be able to obtain records that are comparable and that admit of at least approximately quantitative results. One of the first excised organs studied was the small intestine <sup>(12)</sup>—(1) because of its histological structure, being an organ rich in smooth muscle; (2) because of its reaction to serum in the intact animal. In the intact animal, however, the effects of a changed blood supply, especially following serum injection, and of incoming nervous impulses, render the subject too complicated for analysis. The excised intestine, however, when treated with serum, either with or without atropin, reacted so constantly that a series of experiments were made with the following technique:

1. A series of double muscle warmers of special construction were connected and fed from a common water heater; thus the thermometers in each of the baths recorded the same temperature, usually between 32° and 34° C., varying for a given experiment but a fraction of a degree in the course of two to three hours.

2. The intestine was prepared by tying the ends of the empty segment, and, after measuring its length under a given tension, suspending it from a light straw lever so that a record could be made on a slowly revolving drum.

3. The sensitive pigs, of the same stock as those used in Rosenau and Anderson's work on anaphylaxis, were sensitized by subcutaneous injections of 0.01 c. c. of normal horse serum not less than 20 days previous to the time of using. Each animal was anesthetized with ether, a cannula tied into the left external jugular vein, and 20 to 30 centimeters of the small intestine was then tied off, excised, and placed in the suspension fluid contained in a chemically clean covered dish. The ether cone was removed from the animal after sewing up the small abdominal incision. Four or five minutes later one-half c. c. of normal horse serum was injected into the jugular cannula. To make sure of a high degree of sensitization in the animals only segments from those guinea pigs were tested that showed characteristic anaphylactic symptoms and died within five minutes after the toxic dose of serum. Unless otherwise stated, then, animals that reacted to the toxic dose of serum, but recovered, were chloroformed.

4. The normal animals were tested in exactly the same way, being anesthetized with ether, a cannula tied into the left jugular vein, then 20 to 30 c. c. of the small intestine tied off and excised, and at an interval of four or five minutes after sewing up the abdominal incision and removing the ether one-half c. c. of normal horse serum was injected through the cannula into the vein, and the animal, while surrounded with warm bottles, was observed for at least one hour. In analyzing results obtained in such experiments it is of the greatest importance that as much care be exercised in testing the control as in testing the sensitized guinea pigs. This will be emphasized more in detail in a subsequent paragraph.

If a segment of small intestine be suspended in a saline (Howell) bath containing—

|                          | Per cent. |
|--------------------------|-----------|
| NaCl .....               | 0.85      |
| KCl .....                | .025      |
| CaCl .....               | .023      |
| NaHCO <sub>3</sub> ..... | .02       |
| Dextrose .....           | .1        |

with oxygen slowly bubbled through it and the muscle kept at a temperature of 32° to 34° C., and under a slight lever tension, it soon records peristaltic movements. The rate, duration, and force of these movements, as well as the change in tonus of the muscle, is greatly influenced by changes in temperature of the saline bath, so that by rapidly raising the temperature from 32° to 36° C. or from 36° to 40° C. the whole segment is thrown into violent vermiform movements eventually showing increased tonus. In some preparations the muscle, if kept at 32–34° C., shows peristaltic movements more or less periodically, remaining quiescent during the intervals, and there is a suggestion that with stimulating substances introduced during the periods of greatest activity the response is greater than



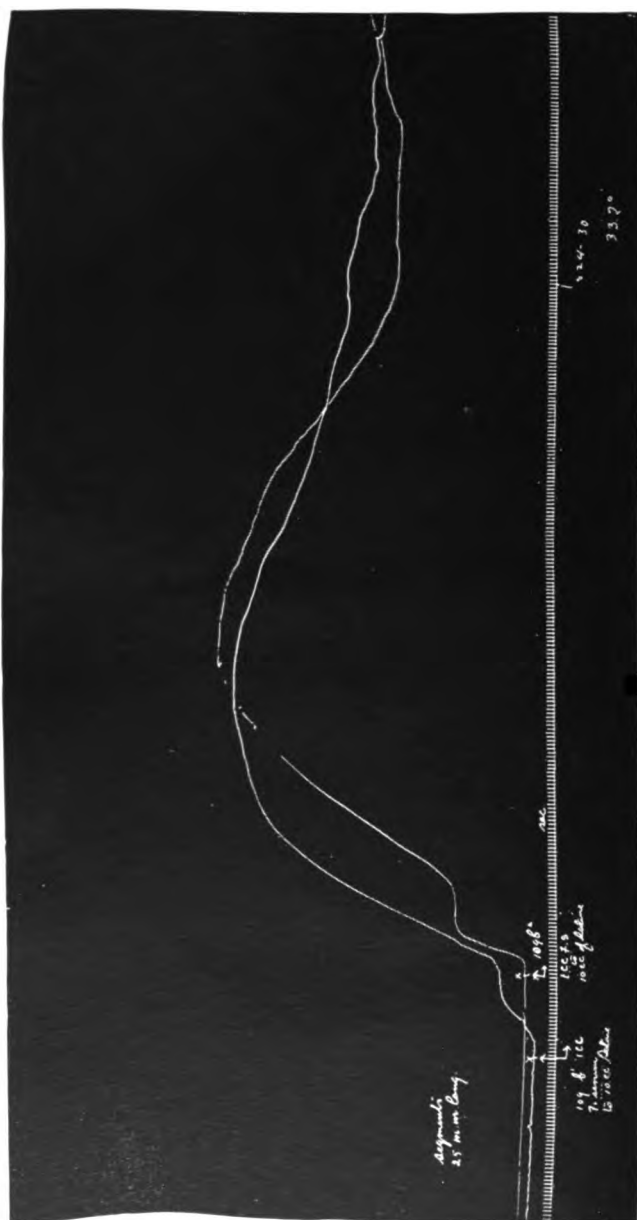


FIG. XV. COMPARATIVE CONTRACTILITY OF TWO ADJOINING SEGMENTS OF INTESTINE FROM A SENSITIZED GUINEA PIG.

Experiment 100b, June 30, 1910. Myograms  $\times 0.625$ .

Guinea pig sensitized November 27, 1909, by a subcutaneous injection of 0.01 c. c. of horse serum. June 30, 1910, partly desensitized by small subcutaneous injections of serum. July 20, 1910, 10.33 a. m., 5 c. c. of horse serum injected intraperitoneally, very mild symptoms; 12.55 p. m. ether anesthesia; 1.05 p. m. intestine tied off, excised, and suspended in 10 c. c. of oxygenated Ringer at  $33.3^{\circ}\text{C}$ . Each segment treated with 1 c. c. of horse serum.

if introduced during the interval of quiescence. Whether this is always true or not endeavor was made to test the preparations of a given set under what were finally concluded to be comparable physiological conditions.

Before comparing normal muscle with that which is sensitized, experiments were made to see if anything approximating quantitative results could be obtained with segments from a given animal or from separate animals supposed to possess the same degree of irritability toward serum. It was soon found out that the following conditions must be met before segments from the same animal or from different individuals can be compared:

1. The segments to be compared must be taken from approximately the same level of the intestine.

2. The animals ought to be fed on the same kind of food, at the same time, and with about the same amounts. In other words, the physiological condition of the intestines to be compared must be comparable. A segment containing food usually yields different results from one which does not.

3. The conditions of temperature, tension, oxygenation, and suspension must be comparable.

4. The solution to be tested must be at the same temperature as the suspension bath, and added to it in the same manner and rate.

After some experience it was possible to secure results that seemed to warrant a comparative study of sensitized and nonsensitized muscle. Figure 15 shows that segments studied under comparable conditions record myograms that very closely resemble each other. Curves (a) and (b) were made by separate segments from the same animal, each sensitized segment being suspended in 10 c. c. of Ringer solution. They were adjoining segments, suspended side by side in a double muscle warmer at the same temperature and each treated with 1 c. c. of horse serum. Six segments from this animal were treated in the same manner with equally consistent results.

It is, however, not always that intestinal segments react with the same degree of consistency. Sometimes inconsistencies occur in segments that have been stimulated more than usual, that have been in contact with Ringer too long, or that have not been excised from the body soon enough after death. Furthermore, sometimes segments from a given piece of gut, for some reason unknown, seem more or less refractory to serum. If, however, a refractory segment, yielding only a partial contraction to the first cubic centimeter of serum, be treated with successive doses of the same serum, additional contractions are recorded. In such cases, of which figure 16 is an illustration, a series of summated contractions result so that the final height of the curve is equal to that obtained from a segment responding to 1 c. c. of serum by a maximum contraction. In this respect the reaction of the refractory segment is not unlike the re-



action of smooth muscle to submaximal electrical stimuli in which one tonus contraction is superimposed upon another.

Having shown that intestinal muscle contracts in response to horse serum and other proteins, and that sensitized muscle likewise contracts, it was then attempted to test the relative irritability of muscle taken from sensitized and from nonsensitized animals. If two segments, each 35 millimeters long, be suspended in the double muscle warmer, the segments react nearly alike, except that there may be a slight difference in the time required for each to begin peristaltic movements.

Upon adding 1 c. c. of serum to the 10 c. c. of suspension fluid of each, there is quite a difference in the reaction. The sensitized muscle usually records a much higher myogram than the nonsensitized one, its tonus is usually greater and more persistent, and the peristaltic contractions superimposed upon the tonus curve are much more pronounced, showing that the sensitized muscle is more strongly stimulated by the horse serum than is the nonsensitized segment. Within certain limits the longer the muscle segments are the better this difference is illustrated by the myograms. In fact, my first sensitized segments recorded such large curves that the lever arm was pulled against the fulcrum, and in order to get a perfect curve the sensitized segments had to be cut shorter.

As stated, some muscles remained in a condition of tonus for a long time. Frequently, however, the segment relaxes and the lever returns nearly to normal in 8 to 10 minutes, sometimes in 3 to 5 minutes, or even more quickly, depending upon the sensitivity of the preparation. In this respect the less irritable of the sensitized preparations do not differ materially from the nonsensitized preparations. See figure 1 for comparative contractility of normal and of sensitized muscle.

#### EFFECT OF A PRIMARY DOSE OF SERUM UPON THE IRRITABILITY OF A SEGMENT TOWARD SUBSEQUENT DOSES.

A muscle once treated with serum that shows a new condition of equilibrium toward its saline-serum bath can be restimulated by fresh addition of serum, the height of the recorded contraction being almost always less in extent than the first contraction. In cases where, for some reason, the first contraction is less than the average, the second curve may be greater in extent than the first. But the rule for the sensitized muscle is that the second contraction is less in extent than the first maximum contraction. From the experiments thus far performed there is some indication that by changing the bath of serum-saline mixture for one of fresh saline a subsequent addition of 1 c. c. of fresh serum to the new saline will call forth a second contraction of considerable height, usually exceeding that obtained by simply adding a second cubic centimeter of serum to the saline. (Compare A, B, and C of Fig. XII.)

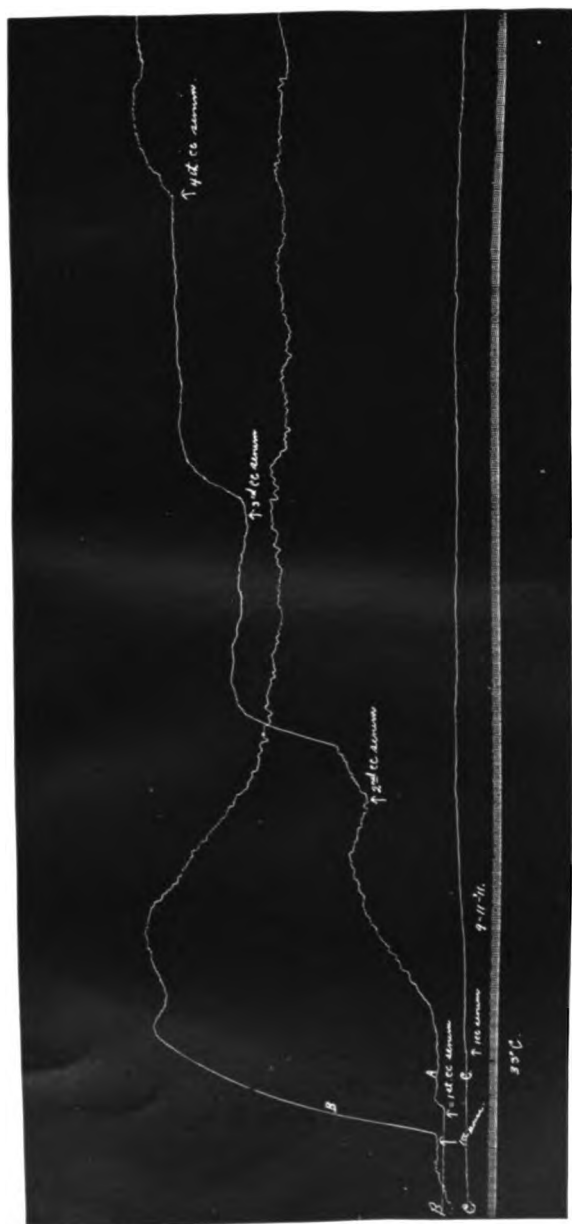


FIG. XVI. REACTION OF EXCISED INTESTINE FROM A SENSITIZED GUINEA PIG. THE INTESTINE STUDIED UNDER DIFFERENT CONDITIONS.

Experiment (immunity series) 27, September 11, 1911. Myograms  $\times 0.625$ .

- a. Myogram from a segment removed during deep ether anesthesia before the lethal dose of serum, and showing a relatively low degree of irritability, but capable of responding to successive 1 c. c. doses of serum until the final tonus curve equals that of the maximum contraction of its companion segment (b).
- b. Myogram from a segment removed just after death from anaphylactic shock.
- c. Myogram from a segment removed after perceptible rigor mortis of the voluntary muscles. Serum seemed to affect the segment but slightly. June 26, 1911, weight, 346 grams, sensitized by a subcutaneous injection of 0.05 c. c. of horse serum; September 11, 1911, weight, 430 grams; 11.25 a. m., ether; 11.40 a. m., intestine tied off and segment (a) excised; 11.44 a. m.,  $\frac{1}{2}$  c. serum injected into jugular vein; 11.49 a. m., last respiratory gasp; 11.53 a. m., segment (b) excised.
- (a) Suspended and tested 4.07 p. m.; (b) and (c) suspended and tested 3.42 p. m.; each 35 mm. long; levers same as described in legend to Figure 1.



### C. REACTION OF SMOOTH MUSCLE FROM GUINEA PIGS RENDERED TOLERANT TO LARGE DOSES OF HORSE SERUM.

In section A (p. 29) it has been shown that smooth muscle contracts quite readily when exposed to small quantities of serum. Furthermore, this normal irritability may be greatly augmented by first sensitizing the animal, as is done in studies of anaphylaxis. Smooth muscle from sensitized guinea pigs, excised and treated with serum, records a contraction curve much greater in extent than a nonsensitized muscle similar in every other respect. Since there is present this peculiar reaction of smooth muscle in sensitized animals, it seemed probable that this supranormal irritability might be reduced to normal or subnormal if the animals were first rendered immune to relatively large doses of serum. Three methods of rendering the animals immune to the pharmacologic action of serum are suggested: (1) The animal may be injected subcutaneously with gradually increasing doses of serum, the doses being given at relatively short intervals, but the number of injections being sufficient to make the total interval of time between the initial or sensitizing dose and the final dose long enough to cover what is ordinarily considered the period of incubation and at the same time to neutralize whatever sensitization may have been acquired. In this way, by the end of 20 days, doses large enough to kill a very sensitive guinea pig ought to have but little effect, either because of an acquired immunity or an acquired tolerance toward a foreign serum. (2) The animal may be sensitized in the usual way, and after 20 days sublethal doses of gradually increasing size, but small enough not to produce grave symptoms, are given, thus gradually neutralizing that which is necessary to high sensitization. (3) Highly sensitive animals may be injected with sublethal doses large enough to produce grave symptoms, still leaving them in a condition not to respond to other large doses of serum within reasonable lengths of time. If smooth muscle from animals desensitized by any of these three methods be tested, it ought not to react like that from a highly sensitized guinea pig, provided the desensitization is complete and permanent. In other words, if there is a condition of absolute immunity set up when large doses of serum no longer kill, then muscle preparations from such animals ought to respond in a manner similar to that from normal ones, or possibly show even a subnormal irritability. It will be seen, however, that neither of these conditions obtains when the first method mentioned of rendering guinea pigs tolerant to large doses of serum is employed.

In this series of experiments guinea pigs of known descent, raised in our own pens, were used. A number of young pigs, weighing from 180 to 250 grams, were divided into three groups, *a*, *b*, and *c*, and kept in the same pen, bedded with hay, and fed on oats, cabbage, and water. Group (*a*) were reserved for normal controls, group (*b*) were sensitized by subcutaneous injections of 0.1 c. c. of sterile horse serum, and group (*c*) were injected with gradually increasing doses of sterile serum, the doses for the first 21 injections being at two-day intervals. The injections were started with 0.1 c. c. on July 1 and the dose doubled (0.1, 0.2, 0.4, 0.8, 1.6, 3.2) until 3.2 c. c. was reached on July 14, after which 4 c. c. was injected peritoneally until July 24, when the irritability of the various organs was tested. At the present time the results obtained with smooth muscle from the intestinal tract will be reported. As a rule, each experiment consisted of from three to six tests with tissue from two different animals, one animal, the control, being either a normal animal or a sensitized one, the other being a desensitized (tolerant) guinea pig. The desensitized pig had been rendered so tolerant to serum as to react no more than does a nonsensitized animal injected intravenously with one-half c. c., or peritoneally with 4 or 5 c. c. of serum.

After this preliminary treatment segments of each of the excised intestines, as nearly alike as possible, were suspended in a saline bath at nearly a constant temperature. The light-recording levers were also as nearly alike as possible and arranged to record the myogram of the control above or below that of the tested segment, a slowly revolving Harvard kymograph being used in obtaining the records on smoked paper. In the course of the experiments the precautions already emphasized (see p. 45) were taken. Only animals that were of nearly the same size were used. Special attention was paid to the time of feeding, as well as to the kind and amount. In order to make doubly sure that any difference in the contractile force noted might not be due to differing stages of digestion, the intestines of each animal were compared, and portions of gut taken that seemed most nearly alike to the eye.

So far as is known there are no abrupt changes in the reaction of an animal after having received a small sensitizing dose of horse serum. It has been shown by Rosenau and Anderson and others that a certain number of days are necessary to accomplish sensitization, and when once acquired the condition lasts a long time. This gradual change can be demonstrated by reactions of the animal's blood, by reactions of its tissues, and more easily by the gross reaction of the animal toward a second or toxic dose of horse serum.

In some recent toxicity experiments with various proteins I have found that occasionally normal nonsensitized guinea pigs are killed by an intrajugular injection of 0.03 c. c. of horse serum per gram body

weight. As a rule, however, after a short period of depression the animals recover, are apparently normal, and then some days later die. One-sixth to one-third this dose of serum, however, may be injected into the external jugular vein without much danger to the animal. With the sensitized animal it is quite different; for an animal that is highly sensitized toward horse serum less than 0.0003 c. c. per gram body weight usually causes death, while smaller doses usually cause very grave symptoms. The toxic intrajugular dose, therefore, for the normal animal is about 0.03 c. c. of horse serum per gram body weight, while for the sensitized animal it is less than 0.0003 c. c. per gram body weight, and for the animal during the period of increasing sensitization it varies anywhere between these extremes.

If, therefore, the increasing irritability of the animal be plotted in the form of a curve, so far at least as the gross symptoms are concerned, irregularities may be introduced into this irritability curve. For example, relatively large doses injected subcutaneously soon after the sensitizing dose greatly hinder the conditions necessary to a vigorous response of the organism to a subsequent injection of serum, provided too long an interval has not elapsed between the last two doses. Whatever it is that is affected by these so-called immunizing doses of serum, one thing is certain, that there is a condition set up inhibiting either the extra or acquired irritability of the cells, or else neutralizing the medium through which they are stimulated. This is true of the intact animal, but is it true of tissues when removed from the body?

The myograms obtained after comparing the irritability of intestine taken from a normal guinea pig with that of intestine from an animal injected with increasing doses of serum, as described for group C on page 48, is well illustrated by figure 1, page 30. Judging from the gross body reaction of the animals that had been repeatedly injected, one would expect to obtain a muscle curve resembling that from a normal guinea pig. The myogram, however, shows the smooth muscle to be still hyperirritable; in fact, it reacts very much like that from a sensitized animal. It matters not whether the final dose of serum be injected into the abdominal cavity or into the circulation, for the muscle of this group of pigs reacted much as did that from sensitized animals. These results would seem to indicate that at least in animals tolerant to serum there is still present that hyperirritability of smooth muscle so characteristic in sensitized animals. Since the smooth muscle of the intestine is hyperirritable toward serum, it would hardly be correct to say that there is not present at least a high degree of latent sensitivity. Yet by reason of the absence of the usual characteristic anaphylactic symptoms some chemical or physical process seems to be responsible for protecting the pig from the injection of what is ordinarily a lethal dose of serum.

1. Guinea pigs may be rendered tolerant to large doses of foreign serum by injecting increasingly large doses of it, at intervals of two days, for a period of 20 to 30 days. The gross body reflexes and the cardiac and respiratory reactions differ markedly from those of a sensitized animal, but intestinal smooth muscle continues to show a supranormal irritability toward a serum similar to that of smooth muscle from a sensitized animal.

2. The tolerance induced by repeated injections of foreign serum resembles tolerance acquired toward certain chemical substances familiar to pharmacologists. As to immunity, it seems impossible by repeated injections to initiate a condition of absolute immunity toward horse serum, since certain tissues not only remain irritable to the serum but acquire a supranormal irritability to it.

#### D. THE REACTION TO SERUM OF SMOOTH MUSCLE FROM GUINEA PIGS RENDERED IMMUNE TO HORSE SERUM.<sup>1</sup>

As already pointed out smooth muscle from normal nonsensitized guinea pigs is irritable toward horse serum. This irritability is greatly augmented by sensitizing the animal with serum, so much so that if one study in pairs muscle segments from a group of normal and of sensitized guinea pigs it is usually possible to determine from the muscle reactions alone which animals had been sensitized and which had not. Just as some nonsensitized guinea pigs react more vigorously than others to relatively large intravenous injections of horse serum, so segments of intestine from different normal animals react with differing degrees of intensity. There is also this same variation noted in animals highly anaphylactic. Nevertheless, the smooth muscles from sensitized guinea pigs as a rule show a greater irritability toward serum than similar muscle from normal animals. Likewise there seems to be a difference in the irritability of smooth muscle from guinea pigs highly sensitive when compared with those less sensitive. It is, however, very difficult (and well nigh impossible) to work out a complete series showing a graded scale of irritability bearing a definite ratio to the degree of sensitivity shown by the animal's gross reaction to the toxic dose of serum.

As just stated there are gradations of sensitivity shown by different guinea pigs. The period required to render an animal anaphylactic as indicated by its gross reactions to a supposedly toxic dose of serum may be greatly prolonged by repeated injections, and in spite of increased irritability in a part of the animal's cells, a tolerance may be developed as described heretofore by Schultz.<sup>23</sup> Furthermore, a guinea pig once rendered highly sensitive to serum may be treated so as, gradually or even suddenly, to render the animal immune, anti-anaphylactic (Besredka), refractory (Gay & Southard), to subsequent doses of serum for at least long periods of time.

It is this particular phase of anaphylaxis that I desire to discuss in relation to the degree of muscle irritability shown by segments of small intestine from—

1. Anaphylactic guinea pigs killed by a toxic dose of serum.
2. Anaphylactic guinea pigs desensitized by sublethal doses of serum, the muscle being tested soon after recovery of the animal.

<sup>1</sup> These immunity experiments of section D were planned by Dr. W. H. Frost and myself with the intention of publishing a joint paper. The experiments of part three, page 55, in which the animals were desensitized by subcutaneous doses should be credited to Schultz and Frost, for it is joint work. About this time Dr. Frost was called to do field work in connection with an epidemic of poliomyelitis, and it proved impossible to continue the work as planned; it is therefore with his kind permission that the experiments were completed and the results put into the present form.



3. Anaphylactic guinea pigs desensitized by subcutaneous doses of serum and showing respiratory symptoms and possibly mild spasms, the muscle being tested 24 to 72 hours after the injection.

4. Anaphylactic guinea pigs nearly killed by a toxic dose of serum, the muscle being tested 10 to 90 days after recovery.

# 1. REACTION OF SMOOTH MUSCLE FROM GUINEA PIGS DEAD FROM ANAPHYLACTIC SHOCK.

This series of experiments for convenience may be divided into three groups, *a*, *b*, and *c*. In group *a* an attempt was made to determine what difference there might be between the irritability of the intestinal muscle of the normal nonsensitized guinea pig and that from the sensitized animal before injecting the toxic dose of serum. In group *b* an attempt was made to determine, if possible, any change in irritability that might ensue from an injection of a toxic dose of serum: finally, group *c* was a control to experiments *a* and *b*, in which the irritability of muscle of the sensitized animal removed before the toxic dose of serum, was compared with that of similar muscle removed after the animal had died from immediate anaphylactic shock.

*a*. In this group, as might be expected, the irritability of the segments removed from the sensitized guinea pig was greater than that from the normal nonsensitized animal (see fig. 1) and furnished material for comparison with intestinal segments removed after the animal had died from anaphylactic shock. The results of this comparison ought to furnish indisputable evidence as to any change in irritability of the muscle because of changes coincident with anaphylactic shock.

*b*. The experiments of this group were not so clear-cut as those of *a*. Indeed, one could hardly expect that they should be, because of the factors involved in the processes of anaphylactic shock. Not only is there a varying degree of disturbance in the colloidal balance and a change in the cellular respiratory quotient, but a general interference with the processes of cell metabolism that might vary greatly with different individuals experiencing anaphylactic shock. Hence, there ought to be considerable variation in the irritability of the muscle cells of animals dying from anaphylactic shock. Protocols 3 and 4 represent extreme types—one in which the irritability of the muscle from an anaphylactic animal resembles that from a nonsensitized animal and the other (4) the irritability of which is comparable with that from a sensitized animal.

The more common form, however, is one in which the irritability of the muscle from an anaphylactic pig has been reduced to that approximating the normal. In other words, the muscle from a sensitized guinea pig shows a decided hyperirritability, but muscle for

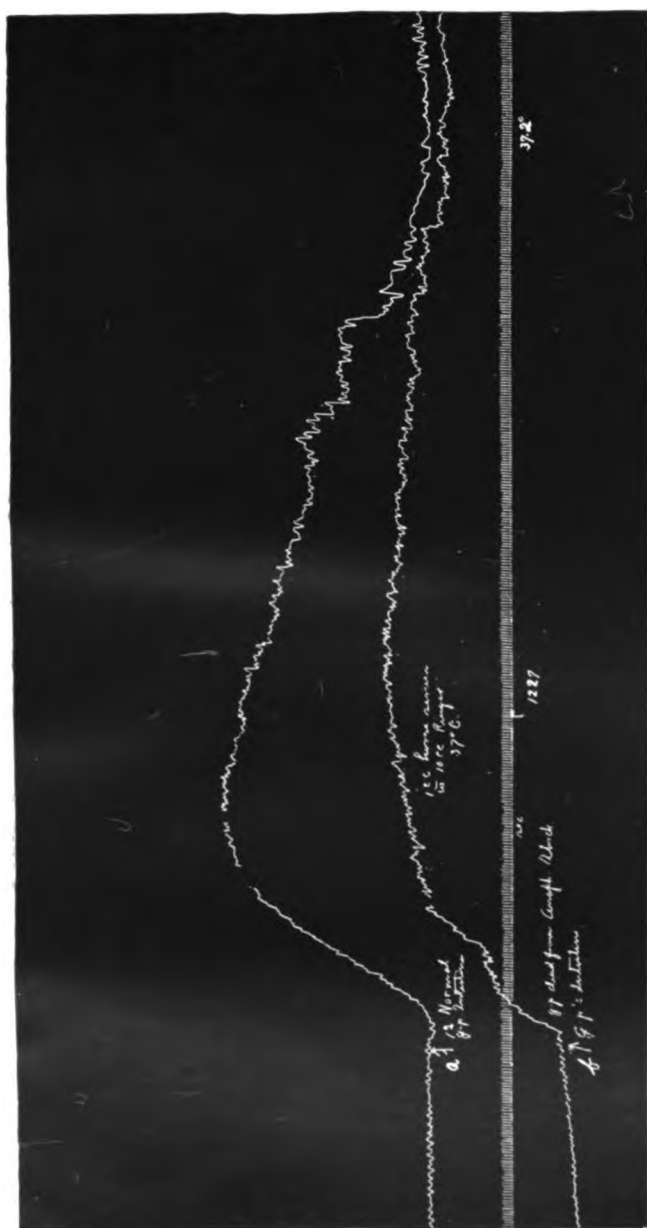


FIG. XVII. THE INFLUENCE OF A TOXIC DOSE OF SERUM AND OF ANAPHYLACTIC SHOCK UPON MUSCLE FROM A SENSITIZED GUINEA PIG.

Experiment (immunity series) 12, December 15, 1910. Myograms  $\times 0.028$ .

a. Myogram from nonsensitized guinea pig's intestine.

b. Myogram from intestine of guinea pig dying from anaphylactic shock.  
See protocol No. 1, for further details.

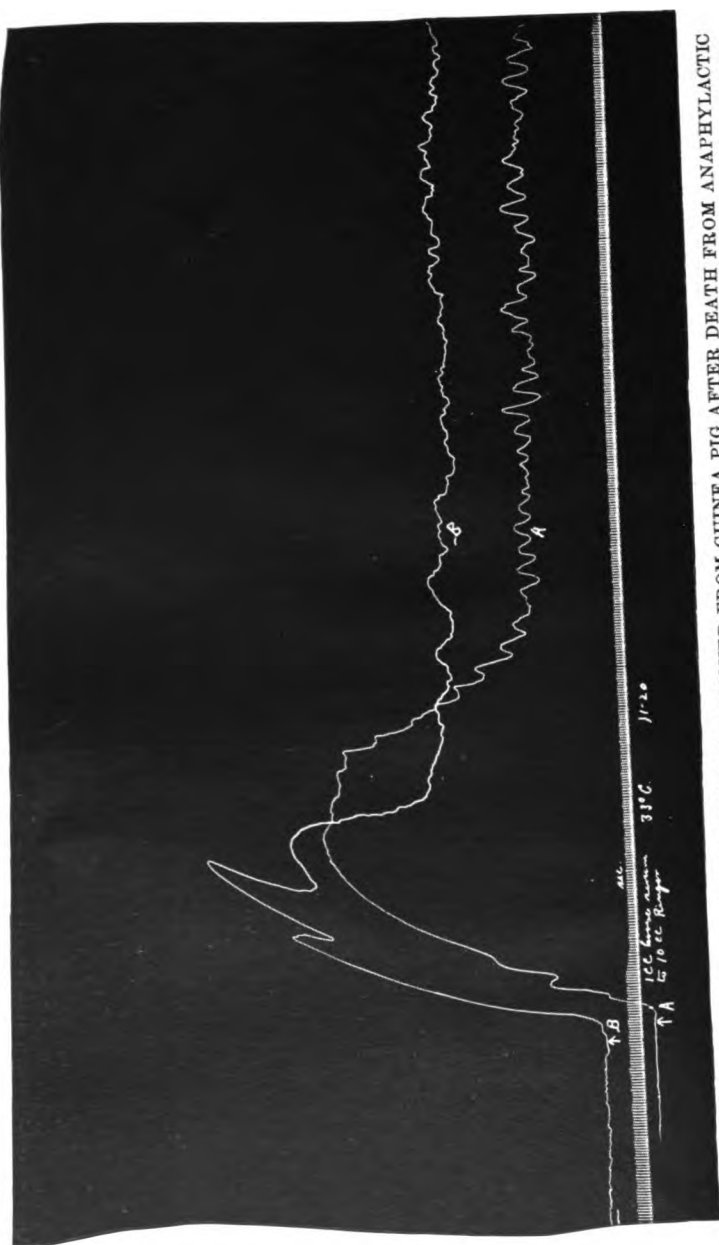


FIG. XVIII. REACTION OF EXCISED INTESTINE REMOVED FROM GUINEA PIG AFTER DEATH FROM ANAPHYLACTIC SHOCK.

Experiment (immunity series) 28, September 11, 1911. Myograms X 0.625.

a. Myogram from segment removed before injecting the toxic dose of serum.  
 b. Myogram from segment removed three minutes after the last gasp of the animal dying from anaphylactic shock.  
 Protocol: Female guinea pig, weight 325 grams, June 29, 1911, sensitized by a 0.05 c. c. subcutaneous injection of horse serum. September 11, 1911, weight 435 grams; ether anesthesia, 10.30 a. m., 200 cm. of intestine tied off, excised, and stored in oxygenated Ringer, sewed up and ether removed; 10.38 a. m.,  $\frac{1}{2}$  c. c. horse serum injected into jugular vein; 10.39 a. m., urine expelled with force, stopped breathing, spasm; 10.43, last gasp; 10.46, segment (b) following (a) removed; 11.10, 35 mm. segments of (a) and (b) suspended in 10 c. c. of oxygenated Ringer at 33° C. But little difference between the irritability of these muscle segments.

the same animal after dying from anaphylactic shock has a tendency to lose part or all of its hyperirritability, and in proportion as it has reacted to serum it reacts more and more like that from a nonsensitized animal. (See Figs. XVII and XVIII.)

*c.* The animals of group *c* confirmed the findings already described in *a* and *b*. The muscle removed from the sensitized guinea pigs before injecting the toxic dose almost invariably showed a hyperirritability, but the muscle taken from the same animals after having died from anaphylactic shock varied. Occasionally samples of the muscle from the dead animals were tested that showed but little difference from muscle removed from the same animal before receiving the toxic dose; that is, both samples were hyperirritable and reacted as is usually the case for muscle from sensitized guinea pigs. (See Fig. XVIII.) But, as a rule, most of the samples of muscle (removed immediately after the last nasal twitch, when scratch reflexes could still be excited by pinching) showed a high degree of irritability toward serum, but usually more or less immunity toward it as compared with muscle from a sensitized animal that had not received a toxic dose of serum. In other words, the remnant of hyperirritability present varied anywhere from 0.0 to 100 per cent of that usually observed in sensitized muscle.

As is well known there is a gradual transfusion and intermingling of the various body fluids after death. Furthermore, body colloids that in life were mobile liquids undergo a change and become less and less so. So that the length of time intervening between stoppage of the heart and the moment of excising the muscle plays a very important part in determining the amount of contractile force exerted by a given segment of muscle. This is not alone due to the completed reaction of the serum with the cell colloids, but also due to changes incident to cell asphyxia. Loss of irritability from such causes is illustrated by myogram C, Fig. XVI, described on pages 45 and 46.

#### PROTOCOL 1.—IMMUNITY EXPERIMENT No. 12.

(*a*) *Sensitized guinea pig*.—November 4, 1910, weight, 215 grams. Sensitized by subcutaneous injection of 0.01 c. c. of horse serum. December 15, 1910, weight, 305. 11.20 a. m., 5 c. c. intraperitoneal injection of horse serum. 11.34, on side gasping. 11.37, died. 11.49, small intestine tied off, excised, and placed in oxygenated Ringer.

(*b*) *Nonsensitized guinea pig*.—The animal was kept in the same cage and under the same conditions as the sensitized one. December 15, 1910, weight, 320 grams. 11.40 a. m., neck pinched. 11.43, last gasp. 11.55, small intestine tied off, excised, and placed in oxygenated Ringer. 12.20 p. m., segments 35 millimeters long were each suspended in 10 c. c. of oxygenated Ringer solution at 36° C. Each segment was some minutes later treated with 1 c. c. of horse serum of the same temperature as the suspension fluid.

Height of normal myogram, 43 millimeters.

Height of post-anaphylactic myogram, 38 millimeters.

(See also Fig. XVII.)

## 2. ANAPHYLACTIC GUINEA PIGS DESENSITIZED BY SUBLETHAL DOSES OF SERUM, THE MUSCLE BEING TESTED SOON AFTER RECOVERY OF THE ANIMAL.

In this series of experiments young guinea pigs were sensitized by subcutaneous injection of 0.1 c. c. of horse serum. These animals were then kept with the controls in a separate cage and fed upon oats, water, and cabbage for at least 21 days. After a sufficient number of experiments had been performed to determine what results to expect, further confirmatory experiments were performed with guinea pigs sensitized with diphtheria antitoxin, the animals otherwise being treated and kept like the rest of the series. These animals, as a rule, were highly sensitive, very constant in their reactions, and furnished excellent material for confirming the results already obtained with animals sensitized and tested with pure horse serum.

Desensitization was usually accomplished by intraperitoneal injection of 2 c. c. or less of horse serum. Those animals, except where otherwise noted, that recovered from the anaphylactic symptoms were then anesthetized, a cannula tied into the jugular vein, and 200 or more centimeters of intestine removed. After the animal had recovered from ether, one-half to 1 c. c. of serum was usually injected into the jugular vein to test the animal's reaction to serum. If it showed no marked symptoms, the excised intestine was then tested and its irritability compared with muscle either from normal or from sensitized animals. (See protocols 2 and 3, and fig. 19.)

The results of this series of experiments were very constant. The muscle from the nonsensitized guinea pigs always showed less irritability than that from guinea pigs that had been sensitized. The muscle from guinea pigs immune to horse serum, on the other hand, showed an irritability in degree somewhere between that of muscle from sensitized animals and that from nonsensitized ones; that is, nondesensitized animals. It seemed that those animals which reacted most violently to the toxic dose of serum without fatality furnished muscle that showed an irritability about equivalent to or slightly below that of muscle from normal nonsensitized pigs.

There is shown, then, a certain degree of irritability in sensitized muscle that is in excess of normal. This excess of irritability can be reduced by injecting a single dose of serum. Indeed, the muscle irritability of a desensitized animal may swing slightly below normal in animals that react violently to the toxic dose and recover, or if the animal for some reason reacts but slightly to the toxic dose of serum the muscle may retain most of its hyperirritability and react more like muscle from a sensitized animal.





PROTOCOL No. 2.—IMMUNITY EXPERIMENT No. 15, JANUARY 5, 1911.

(15a) *Normal nonsensitized guinea pig*.—When placed in cage with this group weighed 305 grams. January 5, 1911, weight, 331 grams. 1.16 p. m., decapitated. 1.24 p. m., intestine tied off, excised, and placed in oxygenated Ringer.

(15b) *Immune guinea pig*.—Weight, 300 grams. November 11, 1910, sensitized by subcutaneous injection of 1/800 c. c. of diphtheria antitoxin. January 5, 1911, weight, 330 grams. 10.38 a. m., 2 c. c. horse serum injected intraperitoneally. 10.42, coughing, scratching, prostration. 10.50, semireclined position; sick. 1.10, sitting up in fairly good condition. 1.15, decapitated. 1.21, intestine tied off, excised, and stored in oxygenated Ringer.

(15c) *Sensitized guinea pig*.—November 8, 1910, weight, 290; sensitized by subcutaneous injection of 1/640 c. c. of diphtheria antitoxin. January 5, 1911, weight, 336. 1.46 p. m., decapitated. Intestine tied off, excised, and stored in oxygenated Ringer.

The intestinal segments from the normal, sensitized, and immune pigs were tested 14, 28, and 28 minutes, respectively, after having been removed from the abdominal cavity. The heights of the respective curves were as follows:

(15a) Intestine from normal animal, 55 millimeters.

(15b) Intestine from immunized animal, 50 millimeters.

(15c) 1. Intestine from sensitized animal, 68 millimeters.

(15c) 2. Intestine from sensitized animal, 63 millimeters.

PROTOCOL No. 3.—EXPERIMENT No. 14, JANUARY 4, 1910.

(14a) *Normal, nonsensitized guinea pig*.—Weight, 305 when put in cage with other animals. January 4, 1910, weight, 347. 1.46 p. m., decapitated. 1.58, intestine tied off, excised, and stored in oxygenated Ringer.

(14b) *Immunized guinea pig*.—November 10, 1910, weight, 330. Sensitized by subcutaneous injection of 1/320 c. c. of diphtheria antitoxin. January 4, 1911, weight, 358. 9.48 a. m., 2 c. c. horse serum injected into peritoneal cavity. 9.54, strong gasping. 9.56, scratch reflex. 10.1, fell over struggling and gasping as if something were in its throat. 10.10, considerable respiratory distress. 10.50, in spite of the very grave symptoms the animal began to recover and by 1.40 p. m., though slightly drowsy, could scarcely be distinguished from a normal animal. 1.45, decapitated. 1.52, intestine tied off, excised, and stored in oxygenated Ringer.

Height of myogram of immune muscle, 36 millimeters.

Height of myogram of normal muscle, 38 millimeters.

8. ANAPHYLACTIC GUINEA PIGS, SHOWING RESPIRATORY SYMPTOMS AND POSSIBLY MILD SPASMS, THE MUSCLE BEING TESTED 24 TO 72 HOURS AFTER THE INJECTION.

In this series of experiments the animals were a part of those described for part 2, page 54, though the method of desensitization was somewhat different. The sensitized animal was injected subcutaneously with small doses of serum, 1 c. c. or less; in other words, with doses from which no violent symptoms were observed. Say, to-day the animal received a fraction of a cubic centimeter, in the forenoon of the following day another fraction, and, finally, in the



afternoon a large dose to test the final reaction of the animal. If the guinea pig did not react to the final toxic dose any more than a nonsensitized animal, it was killed and its muscle irritability tested and compared either with that of a normal or a sensitized animal. The muscle from those animals that showed no reaction other than that usually observed in nonsensitized animals reacted much in the manner of muscle from the nonsensitized controls. Compared with muscle removed from anaphylactic animals before the toxic injection of serum, irritability was almost invariably less in the desensitized muscle. (See fig. 20.) When, however, there are more or less distinct respiratory symptoms upon the final injection of serum, in what one may designate the partially desensitized animals, the smooth muscle showed an irritability lying somewhere between that of a normal nonsensitized guinea pig and one which proved to be anaphylactic; i. e., one dying from immediate anaphylactic shock.

From these experiments it would seem, then, that animals can be rendered immune by small doses of serum that do not necessarily cause any visible symptoms of a grave character. The conditions of the tissue cells, at least of smooth muscle, is likewise gradually altered, so that they more nearly approach the normal in their physiological reaction to serum. That condition initiated during the physiological processes of severe anaphylactic reaction of the whole animal to the toxic dose of serum, brought on suddenly by relatively large intraperitoneal or intravenous doses, may also be brought about by such doses of serum as reach the cells slowly, providing sufficient time be allowed. This is indeed interesting, and also of great practical importance in serum therapy. Both biological reactions just referred to are physico-chemical in nature. In the one, however, where large masses of serum immunize quickly, the tissue reaction is violent and endangers the life of the individual; whereas when small doses of protein are injected in such a manner as to reach the tissues in minute but gradually increasing amounts a slow physico-chemical reaction ensues, yet the immunization is equally certain and much safer. When, therefore, it is suspected that man is hypersensitive toward a given protein, the rational method of injection would seem to be the one calculated to neutralize the hyperirritability of the tissue cells and bring about a condition of immunity. This having been accomplished, it is then possible to use doses of the therapeutic agent large enough to accomplish the end sought, and with much less danger of protein intoxication to the patient.

#### PROTOCOL 4.—IMMUNITY EXPERIMENT No. 18, JANUARY 9, 1911.

(a) *Immunized guinea pig*.—Male, November 11, 1910. Weight, 320 grams. Sensitized by subcutaneous injection of 0.06 c. c. of diphtheria antitoxin. January 7, 1911, 10.08 a. m., 1 c. c. horse serum injected subcutaneously. 10.50 a. m.,

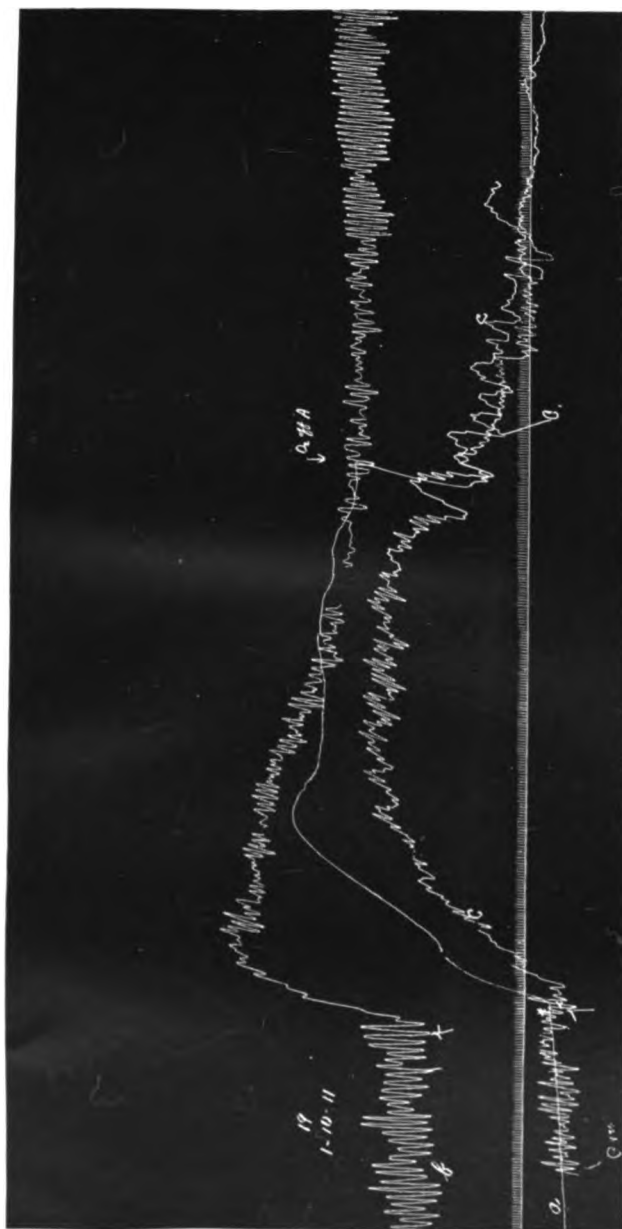


FIG. XX. COMPARATIVE CONTRACTILITY OF INTESTINAL MUSCLE FROM NONSENSITIZED, SENSITIZED, AND IMMUNIZED GUINEA PIGS.

Experiment (immunity series) 19, January 10, 1911. Myograms  $\times 0.634$ .

- a. Myogram from a sensitive animal.
  - b. Myogram from an immunized animal.
  - c. Myogram from a normal nonsensitized animal.
- For further details, see text and protocol No. 5.



mild respiratory symptoms, sneezing, drowsy, and stupid. January 9, 1911, 10.28 a. m., 2 c. c. horse serum injected intraperitoneally. 10.50 a. m., no symptoms observed. 11.34 a. m., ether anesthesia, cannula tied into left jugular vein, ether off. 11.55 a. m., ether anesthesia. 12.04 p. m., intestine tied off, excised, and stored in oxygenated Ringer, ether off. 12.12 p. m., 1 c. c. horse serum injected into left jugular vein; up to 1.55 no anaphylactic symptoms observed. Killed 1.50 p. m.

(b) *Nonsensitized guinea pig*.—Female, kept in cage with (a), January 9, 1911. Weight, 295 grams. 3.25 p. m., neck pinched, intestine tied off, excised, and stored in oxygenated Ringer.

(c) *Sensitized guinea pig*.—Male, November 8, 1910. Weight, 270 grams. Sensitized by a subcutaneous injection of 0.001 c. c. of diphtheria antitoxin. January 1, 1911, weight 390 grams. 11.44, ether anesthesia, cannula in left external jugular vein, segment of intestine tied off, excised, and stored in oxygenated Ringer. 12.15 p. m., 1 c. c. horse serum injected into left jugular vein. 12.17 stopped breathing, spasm, followed by gasping. 12.20, last gasp.

In two successive experiments myograms of the following heights were recorded by the respective segments. The normal<sup>1</sup> of the first set is a little low, because this reading represents that obtained after a second treatment with serum. By mistake the suspension bath became contaminated with serum and a partial contraction resulted. The segment was then washed with Ringer, resuspended, and again stimulated in order to complete the set.

First experiment:

1. Myogram of normal muscle=26 millimeters.
2. Myogram of immune muscle=34 millimeters.
3. Myogram of sensitive muscle=58 millimeters.

Second experiment:

1. Myogram of normal muscle=31 millimeters.
2. Myogram of immune muscle=33 millimeters.
3. Myogram of sensitive muscle=60 millimeters.

PROTOCOL NO. 5.—IMMUNITY EXPERIMENT 19, JANUARY 10, 1911.

(19a)—*Sensitized guinea pig*.—December 14, 1910, weight 255, sensitized by a 0.01 c. c. subcutaneous injection of horse serum. January 10, 1911, weight 310. 1.8 p. m., anesthetized with ether, cannula in left jugular vein. 1.20 intestine tied off, excised, and stored in oxygenated Ringer. 1.22 ether off. 1.33 1 c. c. horse serum injected into left jugular vein. 1.36 guinea pig down on side, breathing ceased, but soon began gasping. 1.42 last gasp.

(19b)—*Immunized guinea pig*.—November 8, 1910, weight 255, sensitized by subcutaneous injection of 0.08 c. c. diphtheria antitoxin. January 9, 1911, 10.35 received subcutaneous injection of 1 c. c. of horse serum. 10.50 coughing, claws mouth and seems to breathe with difficulty. January 10, 10.38 a. m., received intraperitoneal injection of 4 c. c. of horse serum; no symptoms observed. 1.25 p. m. anesthetized with ether, cannula in left jugular vein. 1.35 intestine tied off, excised, and stored in oxygenated Ringer; ether off. 1.45 1 c. c. horse serum injected into left jugular vein. 1.55 pig sitting up. No symptoms other than ether reflexes.

(19c)—*Nonsensitized guinea pig*.—January 9, 1911, weight 285 grams. 3.48 p. m. neck pinched. 3.55 intestine tied off, excised, and stored in oxygenated Ringer. 35 millimeter segments were suspended, each in 10 c. c. of oxygenated Ringer, and tested with 1 c. c. of horse serum. The heights of the myograms

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<sup>1</sup>26 millimeters.

of two experiments similar to that illustrated by figure 19 gave the following results:

**Experiment 2:**

Myogram from normal guinea pig=45 milligrams.

Myogram from immunized guinea pig=86 milligrams.

Myogram from sensitive guinea pig=55 milligrams.

**Experiment 3:**

Myogram from normal guinea pig=47 millimeters.

Myogram from immunized guinea pig=45 millimeters.

Myogram from sensitive guinea pig=56 millimeters.

## SUMMARY.

1. Excised smooth muscle of the guinea pig's intestine, uterus, bladder, aorta, and vena cava, when suspended in oxygenated Ringer solution and treated with serum or solutions of neutral proteins contracts. Perfusion experiments show that the pulmonary arteries, coronary arteries, systemic and possibly the mesenteric arteries contract also if perfused with solutions of proteins neutral to litmus.

2. Smooth muscle, longitudinal or circular, from the small intestine of dogs and cats, is also stimulated to contract when suspended in Ringer and treated with serum or a solution of neutral protein. Likewise muscle from the pulmonary arteries of the cat contracts when treated with serum, peptone, and white of egg. And there is some indication from perfusion experiments that the systemic arteries also contract in response to concentrated solutions of proteins.

3. Normal arterial blood added to Ringer solution in which intestinal muscle is suspended may not stimulate the muscle, but as soon as there is evidence of clotting the muscle contracts and reacts toward the mixture as if it were a solution of serum.

4. Fresh guinea pig serum acts upon smooth muscle in almost the same manner of fresh horse serum.

5. The stimulating action upon muscle of various sera and of such proteins as are coagulated by heat can be greatly diminished by heating, for long periods of time, at 90–100° C. There is, however, a soluble remnant left even after heating serum in a boiling water bath for a long time which stimulates even nonsensitized muscle.

6. A single intravenous or intraperitoneal injection of horse serum does not seem to influence the irritability of muscle toward the same substance providing the muscle be tested within a few hours of the injection. If, however, the muscle is not tested until after the animal becomes anaphylactic a greater degree of contractility is elicited by a given quantity of serum in sensitized muscle than is in a nonsensitized one.

7. Intestinal muscle treated with small doses of atropin or with such concentrations of epinephrin as inhibit normal peristalsis or tonus contractions still responds to serum. Doses of atropin that poison the muscle, thereby reducing the contraction to barium chloride, also lessen the muscle's response to serum. A muscle that has responded to serum may be further stimulated by subsequent treat-

ment with barium chloride, the extent of the second contraction depending upon the amount of muscle fibers not already in a state of maximum contraction because of the serum.

8. Guinea pigs that have been rendered tolerant to large doses of serum by repeated injections of serum yield muscle that reacts much like that from sensitized animals even when 1 c. c. intravenous injections cause no more prominent body reactions than those observed in normal animals. This would seem to indicate that while the tissue cells may be sensitized there is some mechanism whereby the animal as a whole is protected from the toxic action of the final dose of serum. In time, however, this protective mechanism becomes less efficient, and an injection of serum may cause anaphylactic symptoms in the intact animal.

9. Guinea pigs that have been sensitized by a single small dose of horse serum and are, after 20 or more days, desensitized by sublethal doses of serum, yield muscle that shows a varying degree of irritability.

(1) Animals highly sensitive that nearly die from anaphylactic shock, and after recovery react to an intravenous injection of 1 c. c. of serum no more than does a normal animal, usually yield muscle, the irritability of which can not be distinguished from that of a nonsensitized animal.

(2) Muscle from animals that have been desensitized by small doses of serum without showing violent symptoms, but in which a relatively long time has been allowed for the reaction with the second dose to be completed, reacted much like normal muscle; in other words, like that described in (1).

(3) Other animals known to be sensitive, but which reacted mildly to a full-sized toxic dose of serum or showed signs of incomplete desensitization after the final intravenous dose, yielded muscle with a degree of irritability varying anywhere from that common in non-sensitized muscle to that of sensitized muscle.

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## LIST OF HYGIENIC LABORATORY BULLETINS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE.

The Hygienic Laboratory was established in New York, at the Marine Hospital on Staten Island, August, 1887. It was transferred to Washington, with quarters in the Butler Building, June 11, 1891, and a new laboratory building, located in Washington, was authorized by act of Congress, March 3, 1901.

The following bulletins [Bulls. Nos. 1-7, 1900 to 1902, Hyg. Lab., U. S. Mar.-Hosp. Serv., Wash.] have been issued:

\* No. 1.—Preliminary note on the viability of the *Bacillus pestis*. By M. J. Rosenau.

No. 2.—Formalin disinfection of baggage without apparatus. By M. J. Rosenau.

\* No. 3.—Sulphur dioxide as a germicidal agent. By H. D. Geddings.

\* No. 4.—Viability of the *Bacillus pestis*. By M. J. Rosenau.

No. 5.—An investigation of a pathogenic microbe (*B. typhi murium* Danyz) applied to the destruction of rats. By M. J. Rosenau.

\* No. 6.—Disinfection against mosquitoes with formaldehyde and sulphur dioxide. By M. J. Rosenau.

No. 7.—Laboratory technique: Ring test for indol, by S. B. Grubbs and Edward Francis; Collodium sacs, by S. B. Grubbs and Edward Francis; Microphotography with simple apparatus, by H. B. Parker.

By act of Congress approved July 1, 1902, the name of the "United States Marine-Hospital Service" was changed to the "Public Health and Marine-Hospital Service of the United States," and three new divisions were added to the Hygienic Laboratory.

Since the change of name of the service the bulletins of the Hygienic Laboratory have been continued in the same numerical order, as follows:

\* No. 8.—Laboratory course in pathology and bacteriology. By M. J. Rosenau. (Revised edition, March, 1904.)

\* No. 9.—Presence of tetanus in commercial gelatin. By John F. Anderson.

\* No. 10.—Report upon the prevalence and geographic distribution of hookworm disease (uncinariasis or ancylostomiasis) in the United States. By Ch. Wardell Stiles.

\* No. 11.—An experimental investigation of *Trypanosoma lewisi*. By Edward Francis.

\* No. 12.—The bacteriological impurities of vaccine virus; an experimental study. By M. J. Rosenau.

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\*No. 25.—Illustrated key to the cestode parasites of man. By Ch. Wardell Stiles.

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